Glencoe McGraw-Hill

Study Notebook

Pre-Algebra

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Note-Taking Tips

Your notes are a reminder of what you learned in class. Taking good notes can help you succeed in mathematics. The following tips will help you take better classroom notes.

- Before class, ask what your teacher will be discussing in class. Review mentally what you already know about the concept.
- Be an active listener. Focus on what your teacher is saying. Listen for important concepts. Pay attention to words, examples, and/or diagrams your teacher emphasizes.
- Write your notes as clear and concise as possible. The following symbols and abbreviations may be helpful in your note-taking.

Word or Phrase	Symbol or Abbreviation	Word or Phrase	Symbol or Abbreviation
for example	e.g.	not equal	$\neq$
such as	i.e.	approximately	$\approx$
with	w/	therefore	$\therefore$
without	w/o	versus	vs
and	+	angle	$\angle$

- Use a symbol such as a star (★) or an asterisk (∗) to emphasis important concepts. Place a question mark (?) next to anything that you do not understand.
- Ask questions and participate in class discussion.
- Draw and label pictures or diagrams to help clarify a concept.
- When working out an example, write what you are doing to solve the problem next to each step. Be sure to use your own words.
- Review your notes as soon as possible after class. During this time, organize and summarize new concepts and clarify misunderstandings.

Note-Taking Don'ts

- Don't write every word. Concentrate on the main ideas and concepts.
- Don't use someone else's notes as they may not make sense.
- Don't doodle. It distracts you from listening actively.
- Don't lose focus or you will become lost in your note-taking.

NAME _____ DATE _____ PERIOD _____

The Tools of Algebra

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Tools of Algebra
	• A variable represents an unknown number or quantity.
	• If the order of numbers multiplied is changed, the product will also change.
	• A coordinate plane has an x- and a y-axis.
	• A scatter plot sometimes shows a trend in the data, but not always.
	• You need an ordered pair with two numbers to plot a point on a coordinate plane.

Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, be sure to describe steps in detail.**
  Include examples of questions you might ask yourself during problem solving.
- **When searching for the main idea of a lesson, ask yourself, "What is this paragraph or lesson telling me?"**
  Then make certain you answer the question.

NAME _____ DATE _____ PERIOD _____

CHAPTER 1

The Tools of Algebra

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on variables and expressions, one fact might be that a variable is a letter or symbol used to represent an unknown value. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
1-1 Words and Expressions	
1-2 Variables and Expressions	
1-3 Properties	
1-4 Ordered Pairs and Relations	
1-5 Words, Equations, Tables, and Graphs	
1-6 Scatter Plots	

NAME _____ DATE _____ PERIOD _____

1-1 Words and Expressions

What You'll Learn

Skim the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the correct term next to each definition.

_____ ▶ rules to follow when evaluating an expression with more than one operation

_____ ▶ contains a combination of numbers and operations such as addition, subtraction, multiplication, and division

_____ ▶ to find the numerical value of an expression

Vocabulary Link *Operation* is a word that is used in everyday English. Find the definition of *operation* using a dictionary. Explain how the English definition can help you remember how *operation* is used in mathematics.

_____

_____

_____

_____

_____

Lesson 1-1

Main Idea	Details

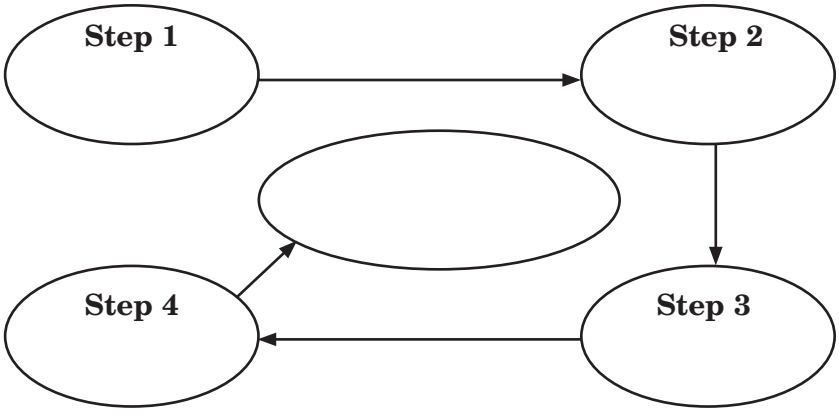
Translate Verbal Phrases into Expressions
p. 5

Complete the operation of the numerical expressions for each verbal phrase.

1. the number of weeks in 42 days → 42 ☐ 7
2. the difference of 18 and 13 → 18 ☐ 13
3. the quotient of 81 and 9 → 81 ☐ 9
4. the total number of students if there are 7 boys and 11 girls → 7 ☐ 11
5. the total number of tires on 14 cars → 14 ☐ 4
6. the sum of 51 and 39 → 51 ☐ 39
7. the product of 9 and 6 → 9 ☐ 6
8. the cost of 4 candies at \$0.35 each → 4 ☐ 0.35

Order of Operations
p. 6

Complete each step to evaluate $2[(7 + 9) \times 3] - 15$.



Helping You Remember

One classmate evaluates the expression $4 + 6 \div 2$ and gets an answer of 5. Another classmate evaluates the same expression and gets an answer of 7. Use the order of operations to explain which answer is correct.

_____

_____

NAME _____ DATE _____ PERIOD _____

1-2 Variables and Expressions

What You'll Learn

Skim the lesson. Write two things you already know about variables and expressions.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write a numerical expression for each verbal phrase. *(Lesson 1-1)*

18 books shared equally among 6 students _____

a package of 15 pencils minus 3 pencils _____

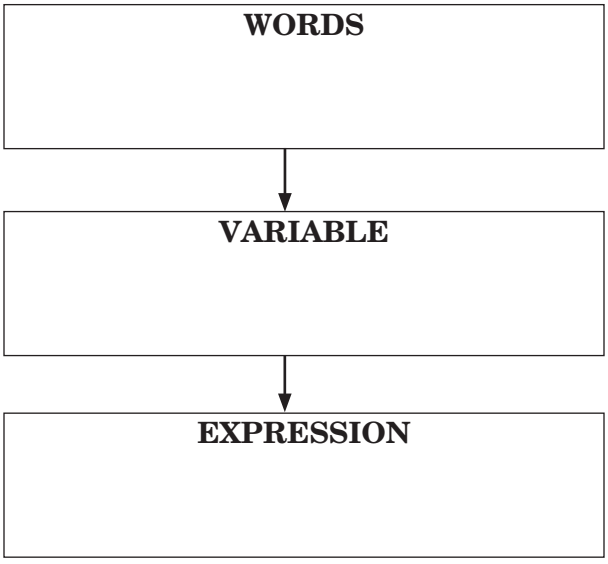
4 eggs plus 3 eggs _____

New Vocabulary Match the term with its definition by drawing a line to connect the two.

variable	an expression with at least one variable and one operation
defining a variable	branch of mathematics that uses symbols
algebraic expression	a letter or symbol that represents an unknown value
algebra	choosing a variable and the quantity it represents

Lesson 1-2

Main Idea	Details
Algebraic Expressions and Verbal Phrases pp. 11–12	**Describe the steps involved in writing algebraic expressions.**



Evaluate Expressions
pp. 12–13

Evaluate each expression if $a = 3$, $b = 7$, and $c = 5$.

1. $6c \div 15 =$ ☐

2. $32 + 4a =$ ☐

3. $27a - (16 - 3c) =$ ☐

4. $\frac{bc}{a + 2} =$ ☐

5. $2b - 4a =$ ☐

Helping You Remember

Variable is a word used in everyday English as well as in mathematics. Write the definition of *variable*. Explain how the English definition can help you remember how *variable* is used in mathematics.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

1-3 Properties

What You'll Learn

Scan Lesson 1-3. List two headings that you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

properties ▶ _____

_____

counterexample ▶ _____

_____

simplify ▶ _____

_____

deductive reasoning ▶ _____

_____

Vocabulary Link *Simplify* has a non-mathematical meaning as well. Use the word *simplify* in a non-mathematical sentence.

_____

_____

_____

Lesson 1-3

Main Idea	Details

Properties of Addition and Multiplication

pp. 18–19

Complete the table by writing the definition and an example of each property.

Property	Definition	Example
Commutative Property of Addition		
Associative Property of Multiplication		
Additive Identity		
Multiplication Identity		

Simplify Algebraic Expressions

p. 20

Simplify each expression by filling in the blanks with a variable or number.

1. $(8 + x) + 2$

$\square + \square$

2. $k \times (4 \times 4)$

$\square \times \square$

3. $3 \times (7 \times p)$

$\square \times \square$

4. $9 + (b + 5)$

$\square + \square$

Helping You Remember

In your own words, define counterexample. Tell how it is used in mathematics and why it is important.

_____

_____

NAME _____ DATE _____ PERIOD _____

1-4 Ordered Pairs and Relations

What You'll Learn

Skim Lesson 1-4. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

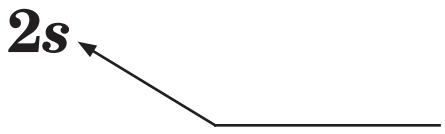
_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with one correct term. *(Lesson 1-2)*



algebraic expression ▶ a(n) _____ with at least one _____ and one _____

New Vocabulary Label the diagram with the correct terms.

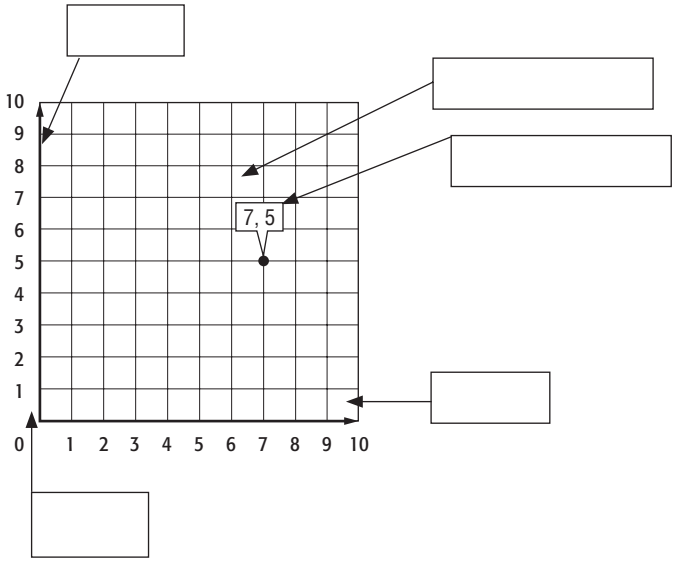
orgin ▶

y-axis ▶

x-axis ▶

x-coordinate ▶

y-coordinate ▶



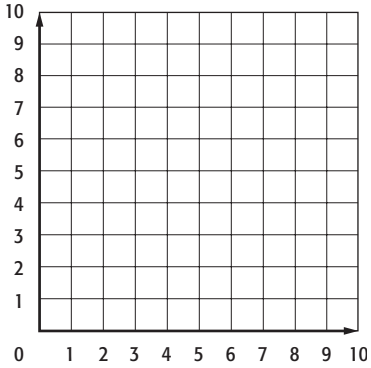
Lesson 1-4

Main Idea	Details

Ordered Pairs
pp. 25–26

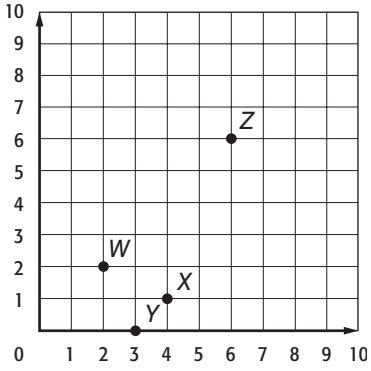
Graph each ordered pair on the coordinate plane below.

***A*(6, 4)** ***B*(0, 4)** ***C*(2, 1)** ***D*(5, 0)**



Relations
p. 27

Write the relation as a table. Then write the domain and range.



x				
y				

domain: _____

range: _____

Helping You Remember

Write two examples of coordinate systems that are used in everyday life.

_____

_____

NAME _____ DATE _____ PERIOD _____

1-5 Words, Equations, Tables, and Graphs

What You'll Learn

Skim the Examples for Lesson 1-5. Predict two things you think you will learn about words, equations, tables, and graphs.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Explain how the Additive Identity Property and the Multiplicative Identity Property are the same. *(Lesson 1-3)*

_____

_____

_____

_____

New Vocabulary Fill in each blank with the correct term or phrase.

function ▶ a _____ where each member of the domain is paired with exactly one member in the _____

equation ▶ a mathematical _____ stating that two quantities are _____

function rule ▶ the _____ performed on the input in a function to get the _____

function table ▶ a table that lists the _____, rule, and the _____

Main Idea	Details

Represent Functions
p. 33

Complete each function table. Then write the rule for each function.

1. Nancy bought half as many pants as shirts.

Number of shirts	**Input (x)**				
Number of pants	**Output(y)**				

Rule:

2. The recipe calls for 3 times more cups of flour than water.

Cups of water	**Input (x)**				
Cups of flour	**Output (y)**				

Rule:

Multiple Representations
p. 34

Represent the function in three different ways.

For each 1,000 meters in altitude, the temperature, which is 35°C, decreases 6.5°C.

Helping You Remember

Name the four ways that functions can be represented.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

1-6 Scatter Plots

What You'll Learn

Scan the text in Lesson 1-6. Write two facts you learned about scatter plots as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Complete the table below naming the operation, (addition, subtraction, multiplication, or division) that each verbal phrase represents. *(Lesson 1-1)*

Verbal phrase	Operation
less	
more than	
quotient	
total	
shared equally	
difference	
times	
sum	
product	

New Vocabulary Define the following term from this lesson.

scatter plot ▶ _____

_____

Vocabulary Link A *scatter plot* can be used to determine trends between two sets of data. Find the definition of *trend* using a dictionary. Describe how *trend* relates to *scatter plots* using your own words.

_____

_____

_____

Main Idea	Details

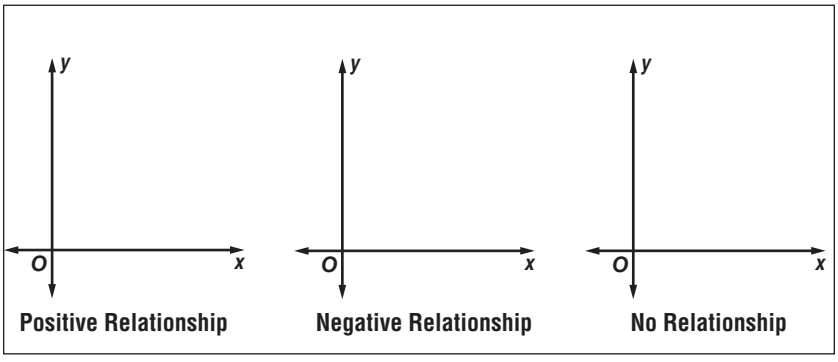
Construct Scatter Plots
p. 40

Compare and contrast the characteristics of scatter plot and a graphical representation of a function.

Scatter plot	Graph of Function

Analyze Scatter Plots
pp. 41–42

Draw a scatter plot that shows each relationship.



Helping You Remember

Describe three real life situations between quantities where the relationship is a positive relationship, a negative relationship, and no relationship.

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

CHAPTER 1

The Tools of Algebra

Tie It Together

Complete the table with an example from the chapter.

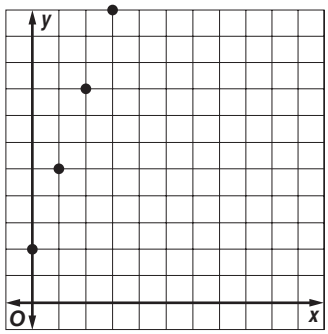
Property	Symbols	Example(s)
Commutative Property		
Associative Property		
Additive Identity		
Multiplicative Identity		
Multiplicative Property of Zero		

Complete the graphic organizer with a term from the chapter.

{0, 1, 2, 3}

{2, 5, 8, 11}

{(0, 2), (1, 5), (2, 8), (3, 11)}



triple a number and add two

Input (x)	0	1	2	3
Output (y)	2	5	8	11

$y = 3x + 2$

NAME _____ DATE _____ PERIOD _____

CHAPTER 1 Tools of Algebra

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.

2. Write a **D** if you disagree with the statement.

Tools of Algebra	After You Read
• A variable represents an unknown number or quantity.	
• If the order of numbers multiplied is changed, the product will also change.	
• A coordinate plane has an x- and a y-axis.	
• A scatter plot sometimes shows a trend in the data, but not always.	
• You need an ordered pair with two numbers to plot a point on a coordinate plane.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 1.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 1 Study Guide and Review in the textbook.

☐ I took the Chapter 1 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Make a calendar that includes all of your daily classes. Besides writing down all assignments and due dates, include in your daily schedule time to study, work on projects, and review notes you took during class that day.

NAME _____ DATE _____ PERIOD _____

CHAPTER 2 Operations with Integers

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Operations with Integers
	• A negative number is less than 0.
	• Every number has one absolute value.
	• Negative numbers can not be used in division problems.
	• When a number is added to its opposite, the sum is zero.
	• The difference of two negative numbers is a negative number.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, include definitions of new terms, explanations of new concepts, and examples of problems.**
- **At the end of each lesson, write a summary of the lesson, or write in your own words what the lesson was about.**

NAME _____ DATE _____ PERIOD _____

CHAPTER 2

Operations with Integers

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on integers and absolute value, one fact might be that a positive number is a number greater than zero. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
2-1 Integers and Absolute Value	
2-2 Adding Integers	
2-3 Subtracting Integers	
2-4 Multiplying Integers	
2-5 Dividing Integers	
2-6 Graphing in Four Quadrants	
2-7 Translations and Reflections on the Coordinate Plane	

NAME _____ DATE _____ PERIOD _____

2-1 Integers and Absolute Value

What You'll Learn

Skim the Examples for Lesson 2-1. Predict two things you think you will learn about integers and absolute value.

1. _____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with the correct definition by drawing a line and connecting the two.

negative number	a comparison of numbers or quantities
positive number	the distance a number is from zero on a number line
integers	a number less than zero
coordinate	the counting numbers, their opposites, and zero
inequality	a point on a number line or graph
absolute value	a number greater than zero

Vocabulary Link List three examples of how *negative numbers* are used in everyday life.

_____

_____

_____

Main Idea	Details

Compare and Order Integers

pp. 61–62

Fill in the blank with <, >, or = to make each numerical sentence true.

1. –19 ☐ –17

2. 0 ☐ –3

3. –1 + –3 ☐ –4

4. –7 ☐ –10 – 17

5. 1 – 6 ☐ 2 – 4

Absolute Value

p. 63

Graph |–5| on a number line. Write its value on the line below your number line. Then explain how you used a number line to find the absolute value of –5.

Helping You Remember

Absolute is a word used in the English language. Find a definition of *absolute* in a dictionary. Write the definition that most closely relates to mathematics. Explain how the definition you wrote down can help you remember the meaning of *absolute value* in mathematics.

NAME _____ DATE _____ PERIOD _____

2-2 Adding Integers

What You'll Learn

Skim Lesson 2-2. Predict two things you expect to learn based on the headings and the Key Concept box.

1. _____

2. _____

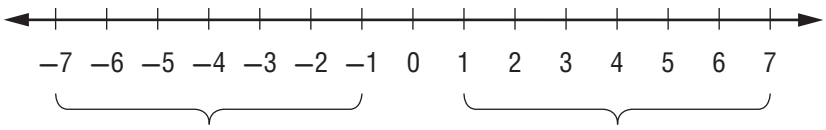
_____

Active Vocabulary

Review Vocabulary Label the diagram with the correct terms. *(Lesson 2-1)*

positive numbers ▶

negative numbers ▶



_____ _____

New Vocabulary Fill in each blank with the correct term or phrase.

opposites ▶ two _____ with the same _____ but different _____

additive inverse ▶ an _____ and its _____

Vocabulary Link *Opposites* can have non-mathematical meanings as well. Name the opposite of the terms listed.

up _____

on _____

day _____

hot _____

boy _____

south _____

Lesson 2-2

Main Idea	Details

Add Integers
pp. 69–71

Model the addition sentence 3 + (–4) on a number line. Write the sum on the line under your model. Then explain in words how you used the number line to find the sum.

_____

_____

Add More Than Two Integers
pp. 71–72

Write each property used to simplify the expression.

$5 + (-7) - 2$

$= 5 + 2 + (-7)$ _____

$= (5 + 2) + (-7)$ _____

$= 7 + (-7)$ Simplify.

$= 0$ _____

Helping You Remember

Suppose that one of your friends was absent from math class the day you learned to add integers. Write an explanation to your friend about how to add integers with the *same signs*. Then explain how to add integers with *different signs*.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

2-3 Subtracting Integers

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Define each term. Include two examples in your definitions. *(Lessons 2-1 and 2-2)*

additive inverse ▶ _____

_____

integer ▶ _____

_____

opposites ▶ _____

_____

Vocabulary Link *Integers* are used in everyday life. For each description, write the integer.

four degrees below zero _____

twelve inches long _____

twenty-five feet below sea level _____

fifty dollars overdrawn _____

Lesson 2-3

Main Idea	Details

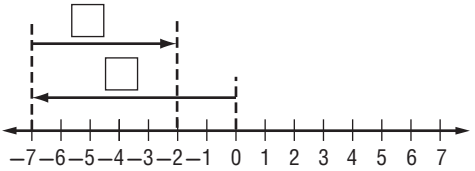
Subtract Integers
pp. 76–77

Describe how to subtract integers with the same and different signs and how to add integers with the same and different signs.

	Add Integers	Subtract Integers
same sign		
different signs		

Evaluate Expressions
p. 78

Label the following diagram of a substraction sentence. Then write the subtraction sentence and solve.



_____

Helping You Remember

Write an example for each difference described below. Then use addition to find each difference.

subtract a positive integer from a positive integer _____

subtract a positive integer from a negative integer _____

subtract a negative integer from a positive integer _____

subtract a negative integer from a negative integer _____

NAME _____ DATE _____ PERIOD _____

2-4 Multiplying Integers

What You'll Learn

Scan the text in Lesson 2-4. Write two facts you learned about multiplying integers.

1. _____

_____

_____

2. _____

_____

Active Vocabulary

Vocabulary Link *Commute* and *associate* are words that are used in everyday English. Find the definition of *commutative* and *associative* using a dictionary. Explain how the English definitions can help you remember how *commutative* and *associative* are used in mathematics.

_____

_____

_____

_____

_____

_____

_____

Main Idea	Details

Multiply Integers
pp. 83–85

Fill in the boxes to simplify each expression.

1. $-3(-5)$ ☐

2. -8×4 ☐

3. 12×10 ☐

4. $4(-2)$ ☐

5. $-9(-7)$ ☐

6. $-6 \cdot 6$ ☐

Algebraic Expressions
p. 85

Simplify the expression given the reason for each step.

$-3(12 + m + 18)$

$=$ _____ Replace m with 50.

$=$ _____ Commutative Property

$=$ _____ Simplify inside.

$=$ _____ Multiply.

Helping You Remember

In your own words, explain why the product of three negative integers is negative. Give an example.

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

2-5 Dividing Integers

What You'll Learn

Scan the text in Lesson 2-5. Write two facts you learned about dividing integers.

1. _____

_____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Fill in the blank with the correct value. *(Lessons 2-1 and 2-2)*

additive inverse ▶ The *additive inverse* of –8 is _____.

opposite ▶ The *opposite* of 6 is _____.

absolute value ▶ The *absolute value* of $|-9|$ is _____.

New Vocabulary Write the definition next to the term.

mean ▶ _____

_____

Vocabulary Link Write two examples of how the mathematical term *mean* is used in everyday life.

_____

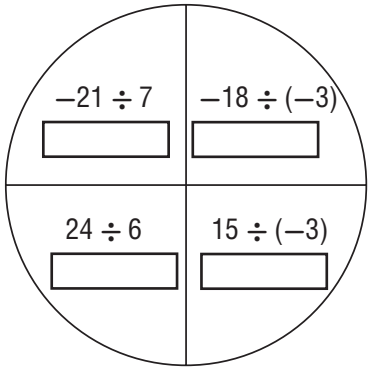
_____

_____

Main Idea	Details

Divide Integers
pp. 90–91

Write *positive* or *negative* to identify each quotient.



Mean (Average)
p. 92

Evan wanted to make sure his golf score average did not go above 42. He previously scored 44, 38, 33, 47, and 41. Fill in the blanks to solve the equation for x that will tell Evan the maximum score he could get and still have an average of 42.

$\frac{44 + 38 + 33 + 47 + 41 + x}{\square} = 42$ There are 6 data items.

$\frac{\square + x}{\square} = 42$ Find the sum of the numerator.

$6\left(\frac{\square + x}{\square}\right) = 42 \times \square$ Eliminate the denominator by multiplying each side by 6.

$\square + x = \square$ Simplify.

$x = \square$ Subtract 203 from each side.

Helping You Remember

Write one example of each quotient described below. Then find the quotient.

dividing a positive integer by a negative integer _____

dividing a negative integer by a negative integer _____

dividing a negative integer by a positive integer _____

NAME _____ DATE _____ PERIOD _____

2-6 Graphing in Four Quadrants

What You'll Learn

Skim the lesson. Write two things you already know about graphing in four quadrants.

1. _____

_____

2. _____

_____

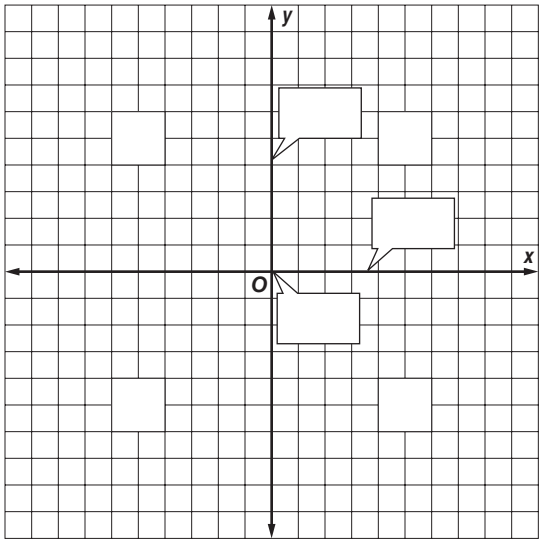
Active Vocabulary

Review Vocabulary Label the diagram with the correct terms. *(Lesson 1-4)*

origin ▶

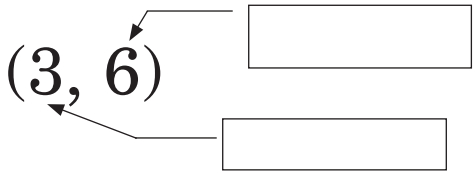
y-axis ▶

x-axis ▶



x-coordinate ▶

y-coordinate ▶



quadrants ▶

New Vocabulary Label the diagram above with the correct quadrant: I, II, III, or IV.

Main Idea	Details

Graph Points
pp. 96–97

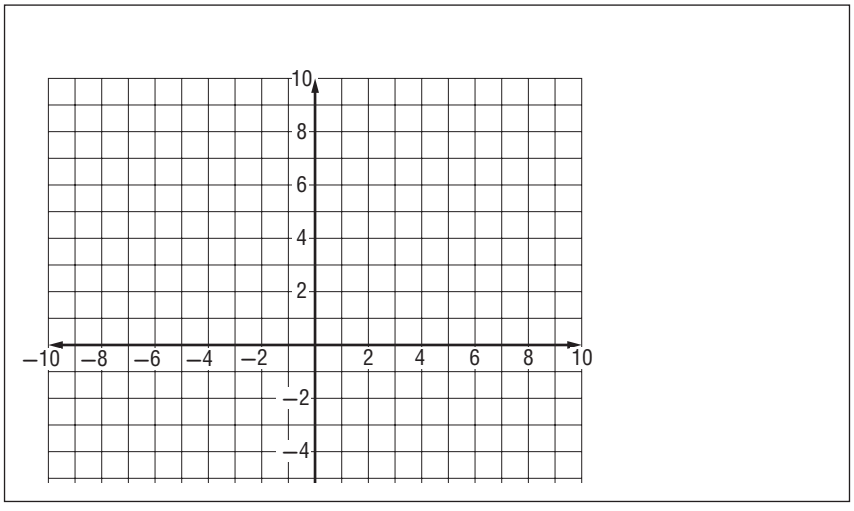
Match the ordered pairs with the correct quadrant by drawing a line to connect the coordinates with the quadrant. Circle coordinates that are not in any quadrant.

Quadrant I	(–3, –3)
Quadrant II	(–2, 0)
	(1, –5)
Quadrant III	(6, 2)
	(–1, 4)
Quadrant IV	(0, 0)

Graph Algebraic Relationships
p. 97

Model the following function by creating a function table with input and output values. Then graph the function.

The sum of one negative and one positive number is 3.



Helping You Remember

Draw a coordinate grid with points to represent your classroom and where your classmates sit. Explain how to name the location of your classmates.

NAME _____ DATE _____ PERIOD _____

2-7 Translations and Reflections on the Coordinate Plane

What You'll Learn

Skim Lesson 2-7. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the correct term next to each definition.

_____ ▶ a transformation where each point of the original figure has a corresponding figure on the other side of a line of symmetry

_____ ▶ a transformation where each point of an original figure moves the same distance in the same direction

_____ ▶ a line of reflection

_____ ▶ an operation that maps an original geometric figure onto a new figure

_____ ▶ a transformed figure

Vocabulary Link *Transform* is a word that is used in everyday English. Find the definition of *transform* using a dictionary. Explain how the English definition can help you remember how *transformation* is used in mathematics.

_____

_____

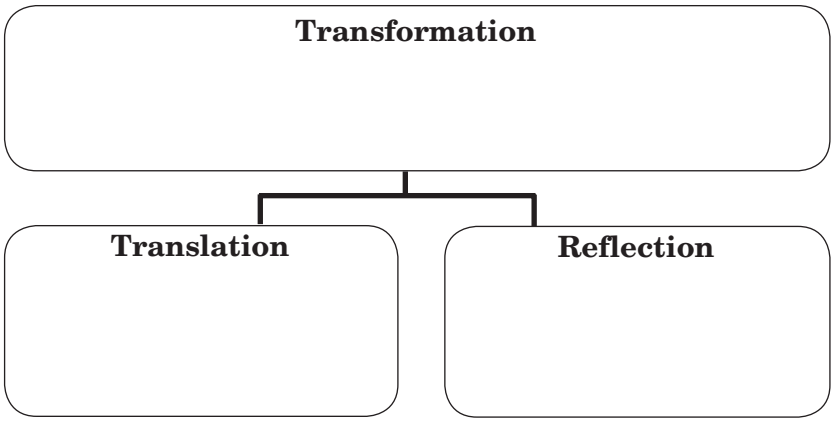
_____

Lesson 2-7

Main Idea	Details

Transformations
p. 101

Complete the organizer by defining the terms in your own words.



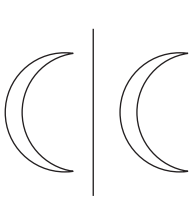
Translations and Reflections
pp. 102–103

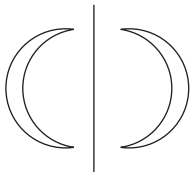
Compare and contrast *translation* and *reflection*.

	Translation	Reflection
How they are alike		
How they are different		

Helping You Remember

Identify each type of transformation. Then describe in your own words how you know that you are correct.





_____

_____

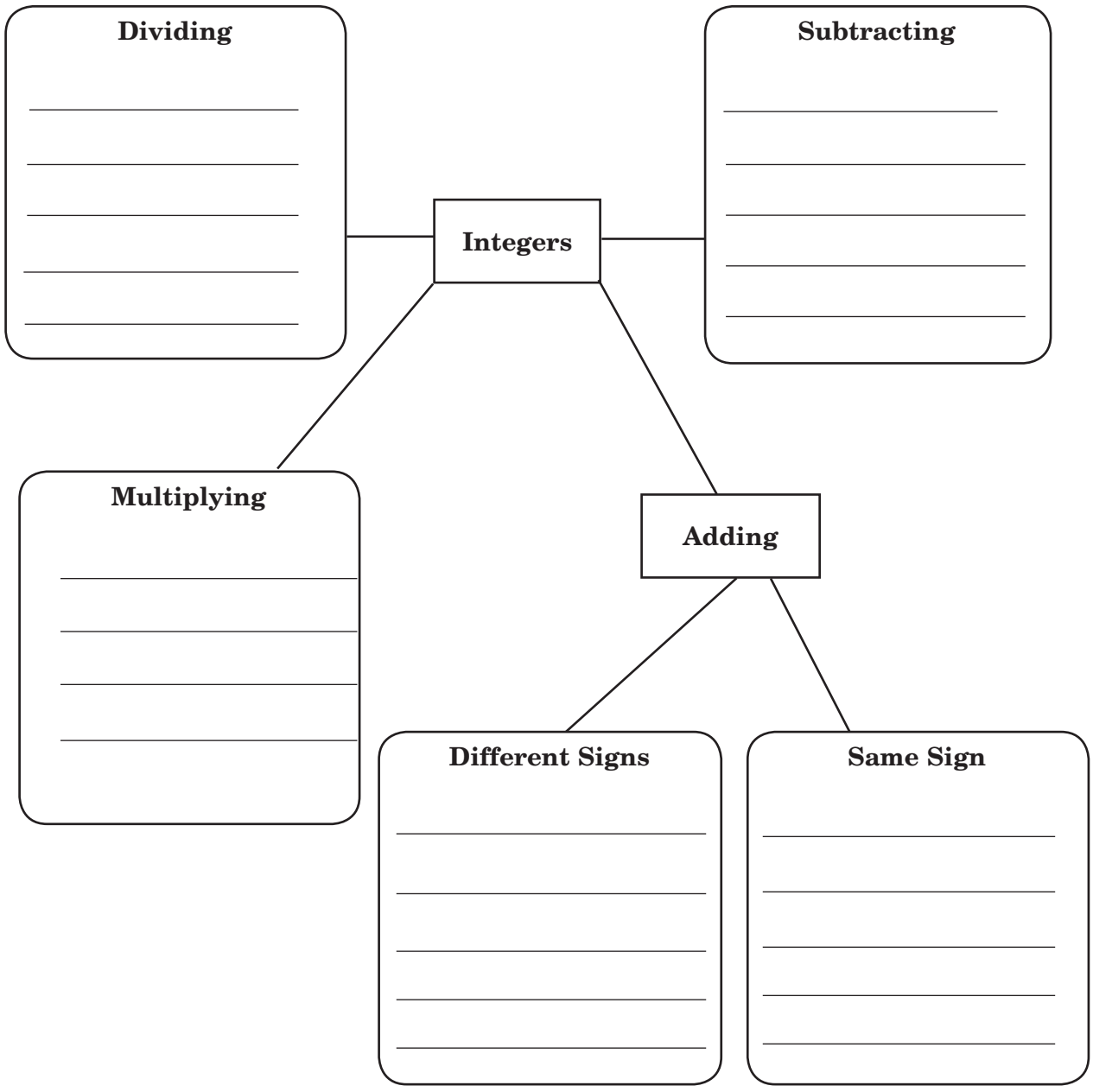
NAME _____ DATE _____ PERIOD _____

CHAPTER 2

Operations with Integers

Tie It Together

Complete the graphic organizer with a phrase to help you remember the process.



NAME _____ DATE _____ PERIOD _____

CHAPTER 2

Operations with Integers

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.

2. Write a **D** if you disagree with the statement.

Operations with Integers	After You Read
• A negative number is less than 0.	
• Every number has one absolute value.	
• Negative numbers can not be used in division problems.	
• When a number is added to its opposite, the sum is zero.	
• The difference of two negative numbers is a negative number.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 2.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 2 Study Guide and Review in the textbook.

☐ I took the Chapter 2 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Make up acronyms to remember lists or sequences. PEMDAS is one acronym for remembering the order of operations (parentheses, exponents, multiply and divide, add and subtract). (Please Excuse My Dear Aunt Sally)

NAME _____ DATE _____ PERIOD _____

CHAPTER 3

Operations with Rational Numbers

Before You Read

Before you read the chapter, think about what you know about rational numbers. List three things you already know about operations with rational numbers in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **As you read each lesson, list ways the new knowledge has been or will be in your daily life.**
- **When you take notes, record real-life examples of how you can use fractions and decimals such as telling time and making change.**

NAME _____ DATE _____ PERIOD _____

CHAPTER 3

Operations with Rational Numbers

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on dividing rational numbers, one fact might be that reciprocals are two numbers whose product is 1. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
3-1 Fractions and Decimals	
3-2 Rational Numbers	
3-3 Multiplying Rational Numbers	
3-4 Dividing Rational Numbers	
3-5 Adding and Subtracting Like Fractions	
3-6 Adding and Subtracting Unlike Fractions	

NAME _____ DATE _____ PERIOD _____

3-1 Fractions and Decimals

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Define *inequality* in your own words. *(Lesson 2-1)*

inequality ▶ _____

_____

New Vocabulary Match the term with its definition.

bar notation	decimals with a pattern in digits that have no end
terminating decimal	line placed over repeating digits
repeating decimal	decimals that divide evenly with no remainder

Vocabulary Link *Terminate* is a word that is used in everyday English. Find the definition of *terminate* using a dictionary. Explain how the English definition can help you remember how *terminate* is used in mathematics.

_____

_____

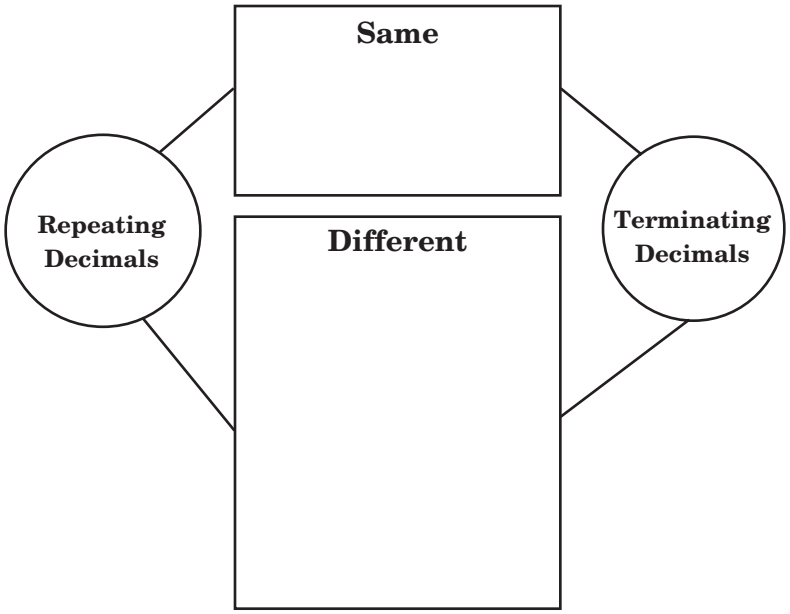
_____

Main Idea **Details**

Write Fractions as Decimals

pp. 121–123

Complete the diagram by comparing and contrasting repeating decimals and terminating decimals.



Compare Fractions and Decimals

pp. 123–124

Fill in the blank with <, >, or = to make each numerical sentence true.

1. $\frac{5}{6} \square \frac{2}{3}$

2. $-0.36 \square -\frac{1}{3}$

3. $\frac{23}{100} \square \frac{1}{5}$

4. $\frac{7}{19} \square \frac{4}{15}$

5. $-\frac{7}{8} \square -\frac{8}{9}$

6. $-\frac{1}{5} \square -0.2$

7. $\frac{3}{8} \square \frac{6}{7}$

8. $\frac{4}{11} \square \frac{5}{21}$

Helping You Remember

In your own words, explain the difference between 0.6 and $0.\overline{6}$. Which number is greater?

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

3-2 Rational Numbers

What You'll Learn

Scan the text in Lesson 3-2. Write two facts you learned about rational numbers as you scanned the text.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lessons 1-3 and 2-1)*

integers ▶ _____

_____

properties ▶ _____

_____

New Vocabulary Fill in the blanks with the correct term or phrase.

rational numbers ▶ any _____ that can be written as _____

Vocabulary Link *Rational* is a word used in everyday English. Find the definition of *rational* in a dictionary. Then use the dictionary to find the antonym, or a word that means the opposite, of *rational*.

_____

_____

_____

Lesson 3-2

Main Idea	Details

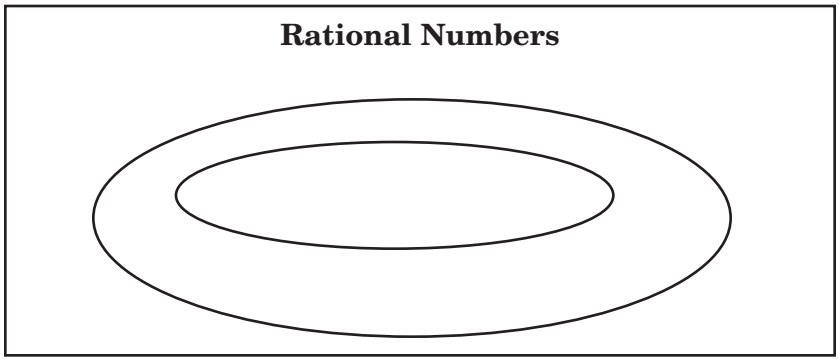
Rational Numbers
pp. 128–129

Match each repeating decimal with its equivalent fraction.

$0.\overline{3}$	$\frac{14}{33}$
$0.\overline{125}$	$\frac{1}{3}$
$0.\overline{42}$	$\frac{1}{33}$
$0.\overline{03}$	$\frac{7}{9}$
$0.\overline{7}$	$\frac{125}{999}$

Identify and Classify Rational Numbers
p. 130

Complete the diagram by labeling each oval with the correct set of numbers. Use the terms *whole numbers* and *integers*. Then include three examples of whole numbers, integers, and rational numbers.



Helping You Remember

Describe the relationship among whole numbers, integers, and rational numbers, in your own words. Give an example of a number that is *not* rational and explain why it is not.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

3-3 Multiplying Rational Numbers

What You'll Learn

Skim Lesson 3-3. Predict two things that you learn based on the headings and figures in the lesson.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lessons 2-2 and 3-2)*

_____ ▶ a number less than zero

_____ ▶ the counting numbers, their opposites, and zero

_____ ▶ any number than can be written as a fraction

_____ ▶ a number greater than zero

Vocabulary Link *Multiplication* is the same as repeated addition. In Lesson 2-2 you used a number line to add integers. Explain how you can use 'repeated addition' to demonstrate $4 \cdot \frac{1}{2}$ on a number line.

_____

_____

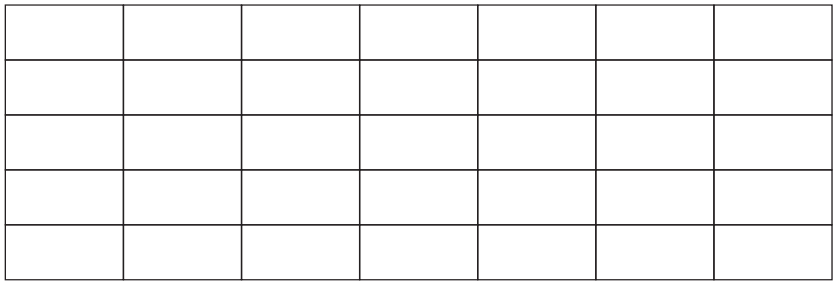
_____

Lesson 3-3

Main Idea	Details

Multiply Fractions
pp. 134–135

Use the model to find $\frac{3}{5} \times \frac{4}{7}$. Explain your steps on the lines below.



_____

_____

_____

Evaluate Expressions with Fractions
pp. 135–136

Fill in the blanks to find each product in simplest form.

Use $x = \frac{2}{3}$, $y = -\frac{7}{11}$, and $z = \frac{3}{5}$.

1. xy

$\square \times \square = \square$

2. $-2y$

$-2 \times \square = \square$

3. $\frac{5}{9}z$

$\frac{5}{9} \times \square = \square$

4. xyz

$\square \times \square \times \square = \square$

Helping You Remember

Explain in your own words how to find the product of two fractions with a model. What portion of the model is the product?

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

3-4 Dividing Rational Numbers

What You'll Learn

Scan Lesson 3-4. List two headings you would use to make an outline for this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in the blank with the correct term or phrase. *(Lesson 2-2)*.

additive inverse ▶ an _____ and its opposite

New Vocabulary Write the definition next to each term.

multiplicative inverses ▶ _____

reciprocals ▶ _____

_____

_____

Vocabulary Link *Reciprocal* is a word that is used in everyday English. Find the definition of *reciprocal* using a dictionary. Explain how the English definition can help you remember how *reciprocal* is used in mathematics.

_____

_____

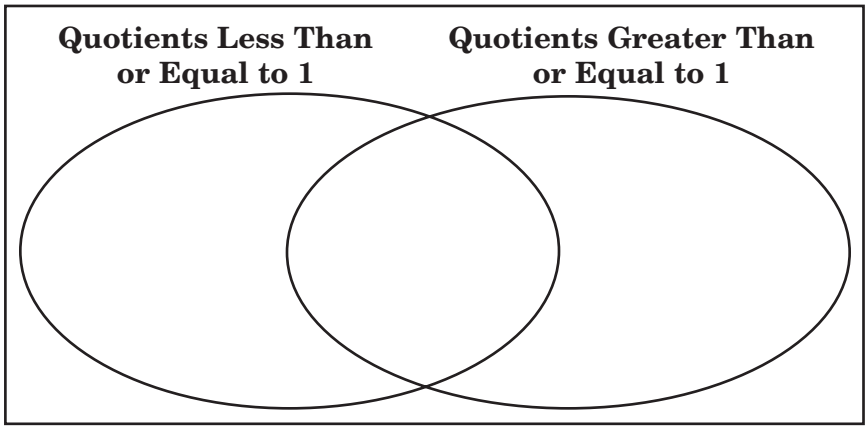
_____

_____

Main Idea	Details

Divide Fractions
pp. 141–143

Place three division expressions in each section of the Venn diagram.



Divide Algebraic Expressions
p. 143

Simplify each expression.

1. $\frac{x^2}{4} \quad \frac{xy}{2}$ ☐

2. $\frac{b}{6ab} \quad \frac{3b}{a}$ ☐

3. $\frac{7}{gh} \quad \frac{5}{4fh}$ ☐

4. $\frac{14x}{xy} \quad \frac{1}{10xy}$ ☐

5. $\frac{q}{12} \quad \frac{n^2}{2}$ ☐

6. $\frac{b}{2d} \quad \frac{2}{9c}$ ☐

Helping You Remember

In your own words, explain how you know whether the quotient of two fractions will be less than 1, equal to 1, or greater than 1.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

3-5 Adding and Subtracting Like Fractions

What You'll Learn

Skim the examples for Lesson 3-5. Predict two things you think you will learn about adding and subtracting like fractions.

1. _____

_____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lesson 2-1)*.

_____ ▶ the distance a number is from zero on a number line

_____ ▶ a number less than zero

_____ ▶ the counting numbers, their opposites, and zero

_____ ▶ a number greater than zero

New Vocabulary Write the definition next to the term.

like fractions ▶ _____

_____

Vocabulary Link *Like* is a word that is used in everyday English. Find the definition of *like* using a dictionary. Explain how the English definition can help you remember how *like* is used in mathematics.

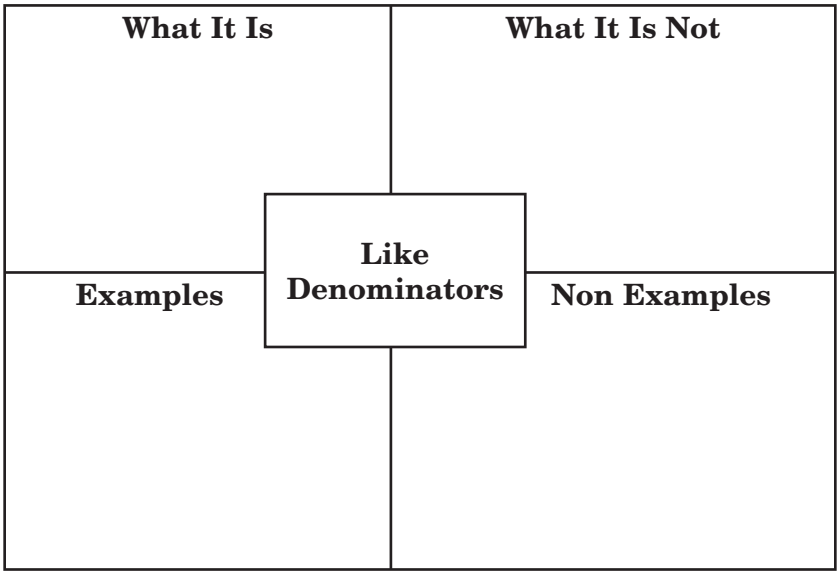
_____

_____

Main Idea	Details

Add Like Fractions
pp. 147–148

Complete the diagram.



Subtract Like Fractions
pp. 148–150

Fill in the blanks with each difference.

1. $3\frac{3}{5} - 2\frac{2}{5} =$ ☐

2. $8\frac{3}{7} - 5\frac{5}{7} =$ ☐

3. $\frac{1}{9} - 1\frac{8}{9} =$ ☐

4. $\frac{3}{10} - \frac{9}{10} =$ ☐

Helping You Remember

Sketch a model to show each sum or difference.

a. $\frac{3}{10} + \frac{6}{10}$

b. $\frac{6}{7} - \frac{3}{7}$

NAME _____ DATE _____ PERIOD _____

3-6 Adding and Subtracting Unlike Fractions

What You'll Learn

Skim the lesson. Write two things you already know about adding and subtracting unlike fractions.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to the term. *(Lessons 2-2 and 3-5)*

opposites ▶ _____

_____

New Vocabulary Label the diagram with the correct terms.

like fractions ▶

unlike fractions ▶

Vocabulary Link *Unlike* can have non-mathematical meanings as well. Give an example of two things that are *unlike* each other. Then give an example of two things that are like each other.

unlike: _____

_____

like: _____

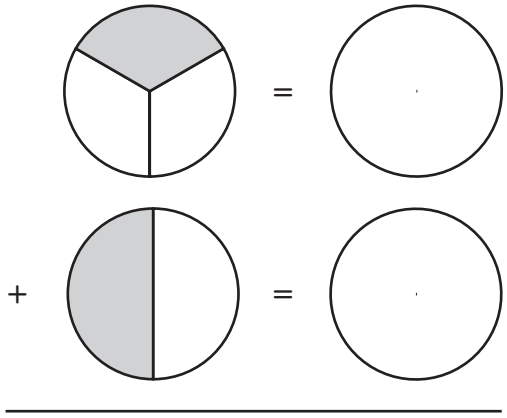
_____

Main Idea	Details

Add Unlike Fractions

pp. 153–154

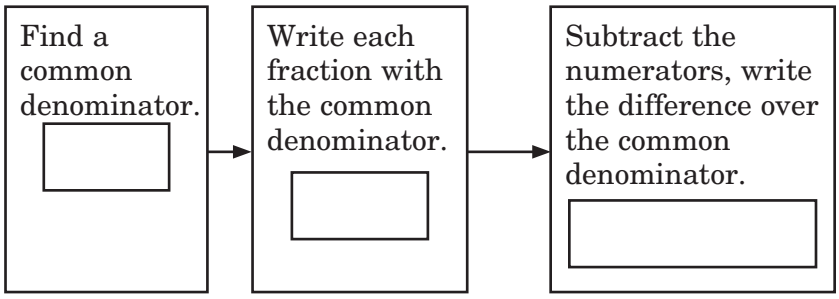
Shade each circle to show equivalent fractions for $\frac{1}{3}$ and $\frac{1}{2}$ using the LCD. Then write the addition sentence the model represents.



Subtract Unlike Fractions

pp. 154–155

Write each step used to find $\frac{5}{6} - \frac{1}{4}$.



Helping You Remember

Describe two methods that you can use to add $1\frac{1}{3}$ and $3\frac{3}{5}$. Then find the sum.

_____

_____

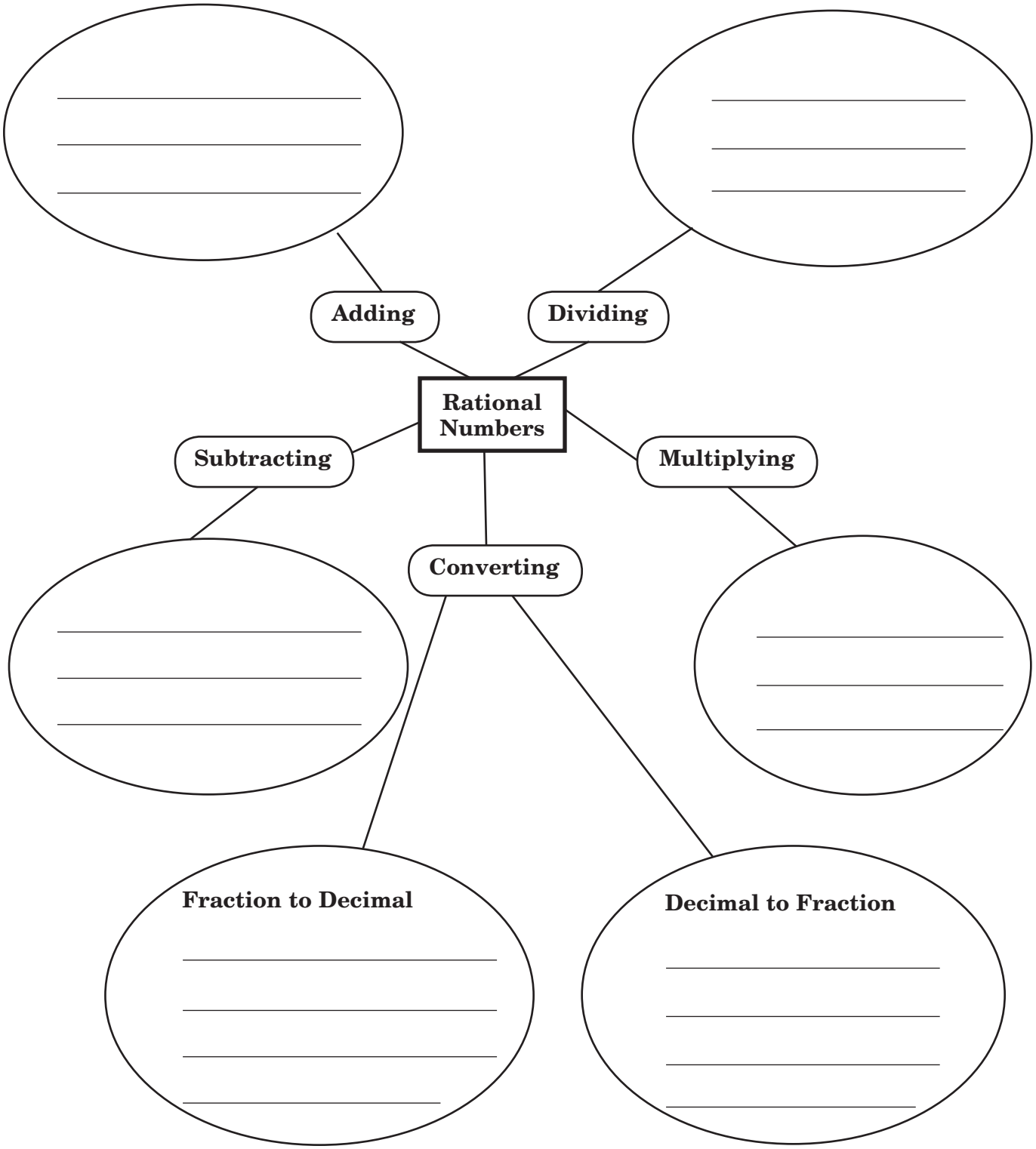
NAME _____ DATE _____ PERIOD _____

CHAPTER 3

Operations with Rational Numbers

Tie It Together

Complete each graphic organizer with a phrase to help you remember the process.



NAME _____ DATE _____ PERIOD _____

CHAPTER 3

Operations with Rational Numbers

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 3.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 3 Study Guide and Review in the textbook.

☐ I took the Chapter 3 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

Study Tips

- Get a good nights rest before a test. Students that take the time to sleep usually do better than students who stay up late cramming.

NAME _____ DATE _____ PERIOD _____

Expressions and Equations

Before You Read

Before you read the chapter, think about what you know about expressions and equations. List three things you already know about them in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, listen or read for main ideas.**
  Then record those ideas for future reference.
- **Write down questions that you have about what you are reading in the lesson.**
  Then record the answer to each question as you study the lesson.

NAME _____ DATE _____ PERIOD _____

CHAPTER 4

Expressions and Equations

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on simplifying algebraic expressions, one fact might be that a term without a variable is called a constant. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
4-1 The Distributive Property	
4-2 Simplifying Algebraic Expressions	
4-3 Solving Equations by Adding or Subtracting	
4-4 Solving Equations by Multiplying or Dividing	
4-5 Solving Two-Step Equations	
4-6 Writing Equations	

NAME _____ DATE _____ PERIOD _____

4-1 The Distributive Property

What You'll Learn

Skim Lesson 4-1. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

equivalent pressions ▶ _____

_____

Distributive Property ▶ _____

_____

_____

Vocabulary Link *Distribute* is a word that is used in everyday English. Find the definition of *distribute* using a dictionary. Explain how the English definition can help you remember how *distributive* is used in mathematics.

_____

_____

_____

_____

Lesson 4-1

Main Idea	Details

Numerical Expressions
pp. 171–172

Complete each expression using the Distributive Property.

1. $5(3 + 4) = 5 \cdot 3 + 5 \cdot \square$

2. $6(4 - 1) = 6 \cdot \square - 6 \cdot 1$

3. $2(8 - 7) = 2 \cdot \square - 2 \cdot \square$

4. $3(4 + 9) = \square \cdot 4 + \square \cdot 9$

5. $(2 + 5)8 = 2 \cdot 8 + 5 \cdot \square$

6. $(6 - 3)7 = \square \cdot 7 - \square \cdot 7$

Algebraic Expressions
pp. 172–173

Model the expression $3(x + 2)$. Then model 3 groups of x and 3 groups of 2. Write two equivalent expressions below your model.

Helping You Remember

A classmate states that $3(x + 1) = 3x + 1$. How would you model to your classmate that $3(x + 1) = 3x + 3$ *not* $3x + 1$ Include drawings with your explanation.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

4-2 Simplifying Algebraic Expressions

What You'll Learn

Scan Lesson 4-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with its definition by drawing a line to connect the two.

coefficient	a term without a variable
constant	each part of an algebraic expression
like terms	terms that contain the same variables
simplest form	the numerical part of a term that contains a variable
simplifying the expression	an algebraic expression that has no like terms and no parentheses
term	using the Distributive Property to combine like terms

Lesson 4-2

Main Idea	Details

Parts of Algebraic Expressions
pp. 178–179

Identify the parts of the algebraic expression below.

$$4x + 9y + 7y - 2x + 5$$

How many terms are there in the expression? _____

How many sets of like terms are there? _____

Circle one pair of like terms. _____

List another pair of like terms. _____

What is the constant term? _____

Simplify Algebraic Expressions
pp. 179–180

Simplify each expression by combing like terms.

1. $4x + 3x = \square x$

2. $10 + 4y + 6y = 10 + \square y$

3. $15a + 6b - 3b + 2a = \square a + \square b$

4. $3t + 1 + 8t - 6 = \square t - \square$

5. $2m - 4k + 3 - 8m + 2 = \square m - \square k + \square$

Helping You Remember

Constant is a word used in everyday English as well as in mathematics. Write the definition of *constant*. Explain how the English definition can help you remember how *constant* is used in mathematics.

_____

_____

NAME _____ DATE _____ PERIOD _____

4-3 Solving Equations by Adding or Subtracting

What You'll Learn

Skim the Examples for Lesson 4-3. Write two things you already know about solving equations by adding or subtracting.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the correct term next to each definition.

_____ ▶ undoes each other

_____ ▶ a mathematical sentence that contains an equals sign (=)

_____ ▶ a value for the variable that makes an equation true

Vocabulary Link *Inverse operations* can have non-mathematical meanings as well. For each activity, name the inverse operation that would undo the activity.

turning on a light switch _____

driving 5 miles north _____

tying a shoelace _____

opening a window _____

Lesson 4-3

Main Idea	Details
Solve Equations by Adding pp. 184–185	**Fill in the blanks to solve each equation.**

1. $x - 2 = 7$

$$\begin{array}{r} \square = \square \\ \hline x \quad = \square \end{array}$$

2. $y - 4 = -3$

$$\begin{array}{r} \square = \square \\ \hline y \quad = \square \end{array}$$

3. $b - 1\frac{2}{3} = \frac{1}{6}$

$$\begin{array}{r} \square = \square \\ \hline b \quad = \square \end{array}$$

4. $c - 6.2 = -9.7$

$$\begin{array}{r} \square = \square \\ \hline c \quad = \square \end{array}$$

Solve Equations by Subtracting
pp. 185–186

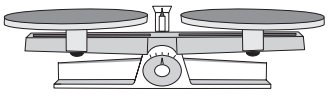
Model the following situation by drawing algebra tiles. Then solve.

Grace and Carrie have 14 necklaces combined. Carrie has 9 necklaces. How many does Grace have?

Helping You Remember

How is adding the same number of blocks to each side of a balance scale like the Addition Property of Equality?

_____



_____

_____

NAME _____ DATE _____ PERIOD _____

4-4 Solving Equations by Multiplying or Dividing

What You'll Learn

Skim the lesson. Write two things you already know about solving equations by multiplying and dividing.

1. _____

_____

2. _____

_____

_____

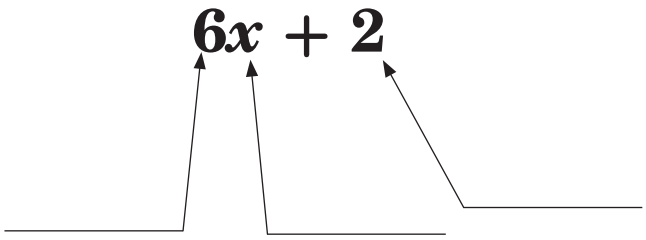
Active Vocabulary

Review Vocabulary Label the diagram with the correct terms. *(Lesson 4-2)*

coefficient ▶

constant ▶

variable ▶



Vocabulary Link *Variable* and *constant* are two words used in everyday English. Find the definitions of *variable* and *constant* using a dictionary. List an example of something in your life that is variable. List an example of something in your life that is constant.

_____

_____

_____

_____

_____

Lesson 4-4

Main Idea **Details**

Solve Equations by Dividing
pp. 191–192

Fill in the blanks to solve each equation.

1. $3m = 18$

$\frac{3m}{\square} = \frac{18}{\square}$

$m = \square$

2. $-5n = 35$

$\frac{-5n}{\square} = \frac{35}{\square}$

$n = \square$

3. $0.6s = -42$

$\frac{0.6s}{\square} = \frac{-42}{\square}$

$s = \square$

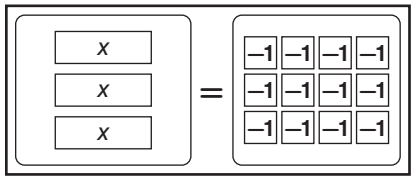
4. $-8t = -48$

$\frac{-8t}{\square} = \frac{-48}{\square}$

$t = \square$

Solve Equations by Multiplying
p. 193

Write an equation to represent the model below. Then solve.



_____

Helping You Remember

Write two examples of equations that can be solved using each of the four properties of equations below.

Addition Property of Equality: _____

Subtraction Property of Equality: _____

Multiplication Property of Equality: _____

Division Property of Equality: _____

NAME _____ DATE _____ PERIOD _____

4-5 Solving Two-Step Equations

What You'll Learn

Scan the text in Lesson 4-5. Write two facts you learned about solving two-step equations.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Identify the following inverse operations. Draw a line from each operation to its inverse. *(Lessons 4-3 and 4-4).*

addition	addition
subtraction	subtraction
multiplication	multiplication
division	division

New Vocabulary Define the following terms from this lesson.

two-step equation ▶ _____

_____

Vocabulary Link *Two-step equations* can be illustrated by real-world examples. Consider the two-step process of putting on socks and putting on shoes. Explain how to "undo" the process. Write an example of another real-world process that takes two steps to "undo".

_____

_____

_____

Main Idea	Details
Solve Two-Step Equations pp. 199–201	

Justify each step used in solving the equation.

$6x - 14 = 16$

$6x - 14 + 14 = 16 + 14$ _____

$6x = 30$ _____

$\frac{6x}{6} = \frac{30}{6}$ _____

$x = 5$ _____

Solve the equation given the justification for each step.

$\frac{y}{9} + 4 = -2$

$\square = \square$ Subtraction Property of Equality

$\square = \square$ Simplify.

$\square = \square$ Multiplication Property of Equality

$y = \square$ Simplify.

Helping You Remember

List the steps you would use in the order you would use them to "undo" each equation.

$2x + 17 = 35$ _____

$\frac{x}{6} - 1 = 18$ _____

$\frac{x + 3}{4} = 5$ _____

NAME _____ DATE _____ PERIOD _____

4-6 Writing Equations

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Complete the table below listing words that indicate each operation. Use the words below the table. *(Lesson 1-1)*

Addition	Subtraction	Multiplication	Division

decreased by	difference
increased by	less
less than	more than
product	quotient
sum	times
total	twice

Main Idea	Details

Write Two-Step Equations
pp. 205–206

Answer each question using the information below.

Miguel and Carla spent $64 at the bookstore combined. Carla spent $15 less than Miguel.

1. Who spent less money at the bookstore? _____

2. How much less? _____

3. Write an expression to represent the amount of money Miguel spent, in terms of m. _____

4. Write an expression to represent the amount of money Carla spent, in terms of m. _____

5. Write an equation to represent the amount Miguel and Carla spent combined, in terms of m. _____

6. How much did each person spend at the bookstore?

_____

Two-Step Verbal Problems
p. 206

Write a verbal sentence to represent the equation below. Then solve.

$$\frac{x}{12} + 4 = 16$$

_____

_____

Helping You Remember

Write a word problem that can be solved using a two-step equation. Solve the equation.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

CHAPTER 4

Expressions and Equations

Tie It Together

Complete the graphic organizer to review writing and solving equations.

Georgia and her brother collected cans for a recycling program. Georgia collected three more than twice as many cans as her brother. They collected a total of 213 cans. How many cans did each person collect?

Steps	Example
Write the equation by translating from words to symbols, to the equation.	
Combine ___ terms.	
Work _____ through the order of operations to "undo" operations. _____ _____ first.	
_____ next.	
Check your answer by _____ _____.	
Answer the question that was asked.	

NAME _____ DATE _____ PERIOD _____

Expressions and Equations

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 4.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 4 Study Guide and Review in the textbook.

☐ I took the Chapter 4 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- When you are preparing to read new material, scan the text first, briefly looking over headings, highlighted text, pictures, and call out boxes. Think of questions you might answer as you read.

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Multi-Step Equations and Inequalities

Before You Read

Before you read the chapter, think about what you know about solving multi-step equations and inequalities. List three things you already know about them in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **A visual (graph, diagram, picture, chart) can present information in a concise, easy-to-study format.**
  Clearly label your visuals and write captions when needed.
- **When you take notes, you may wish to use a highlighting marker to emphasize important concepts.**

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Multi-Step Equations and Inequalities

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on inequalities, one fact might be that an inequality is a mathematical sentence that compares quantities that are not equal. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
5-1 Perimeter and Area	
5-2 Solving Equations with Variables on Each Side	
5-3 Inequalities	
5-4 Solving Inequalities	
5-5 Solving Multi-Step Equations and Inequalities	

NAME _____ DATE _____ PERIOD _____

5-1 Perimeter and Area

What You'll Learn

Scan the text in Lesson 5-1. Write two facts you learned about perimeter and area as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lesson 1-2)*

variable ▶ a _____ or _____ that represents an _____ value

algebraic expression ▶ an _____ with a least one _____ and one _____

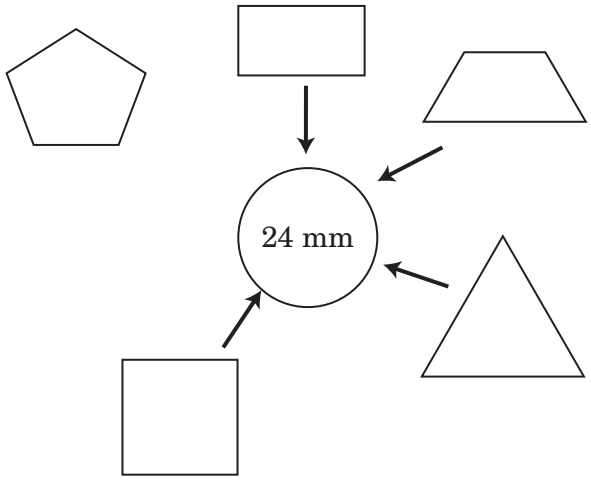
New Vocabulary Match the term with its definition by drawing a line to connect the two.

area	distance around a geometric figure
perimeter	equation that shows a relationship among certain quantities
formula	measure of the surface enclosed by a figure

Main Idea	Details

Perimeter
pp. 221–222

Complete the diagram by labeling each figure so that its perimeter is equal to 24 millimeters.



Area
pp. 222–223

Model a triangle with height of 12 inches and base length of 10 inches. Then find its area.

Helping You Remember

Compare and contrast the units used for perimeter and area. Explain why area uses square units and perimeter does not.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

5-2 Solving Equations with Variables on Each Side

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lessons 4-2 and 4-3)*

like terms ▶ terms that contain the same _____

simplest form ▶ an algebraic expression that has no _____ terms and no _____

simplifying the expression ▶ You can use the _____ _____ to combine like terms.

Additive or Subtraction Properties of Equality ▶ allows you to _____ or _____ the same quantity from each side of an _____ to keep the two sides equal

Vocabulary Link *Equality* is a word that is used in everyday English. Find the definition of *equality* by using a dictionary. List an example of something in your life that has *equality*.

_____

_____

_____

_____

Lesson 5-2

Main Idea

Details

Equations with Variables on Each Side

pp. 229–230

Model the equation $3x - 2 = 5x - 4$ using algebra tiles. Then solve.

Fill in the blanks to solve each equation.

1. $2x + 5 = 3x$

$\square = x$

2. $7b + 5 = -3b - 10$

$10b = \square$

$b = \square$

3. $21 - 16t = 4t - 14$

$\square\, t = -35$

$t = \square$

4. $0.8y + 1.6 = 0.6y - 1$

$0.2y = \square$

$y = \square$

5. $9a - 3 = 15$

$9a = \square$

$a = \square$

6. $18x + 6 = 9 - 3x$

$\square\, x = 3$

$x =$

Helping You Remember

Write an equation with a variable on both sides, along with all the steps needed to solve the equation. Trade with a partner. Then each of you should explain verbally why each step in solving the equation was carried out.

_____

_____

NAME _____ DATE _____ PERIOD _____

5-3 Inequalities

What You'll Learn

Skim the lesson. Write two things you already know about inequalities.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. *(Lesson 2-1)*

_____ ▶ a number less than zero

_____ ▶ the counting numbers, their opposites, and zero

_____ ▶ a number greater than zero

New Vocabulary Write the definition next to the term.

inequality ▶ _____

_____

Vocabulary Link *Inequality* is a word that is used in everyday English. Find the definition of *inequality* using a dictionary. Explain how the English definition can help you remember how *inequality* is used in mathematics.

_____

_____

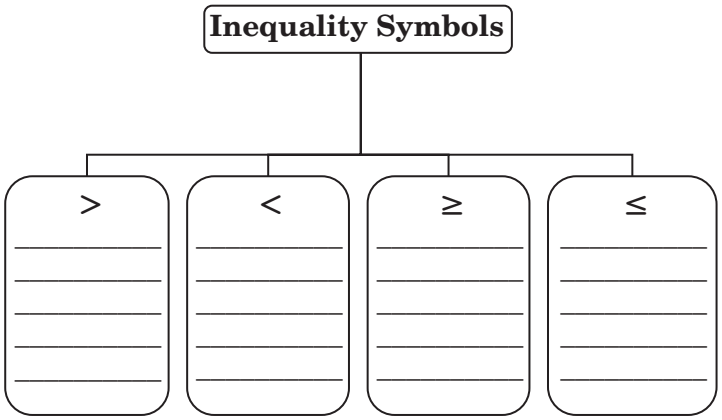
_____

Lesson 5-3

Main Idea **Details**

Write Inequalities
pp. 234–235

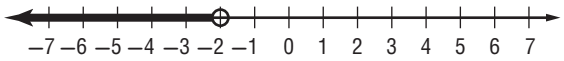
Fill in the organizer with words that describe the symbols.



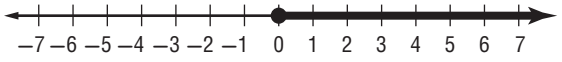
Graph Inequalities
p. 236

Write an inequality for each model.

1. _____



2. _____



Helping You Remember

Write a paragraph explaining how to graph an inequality to a classmate that was absent from class the day it was taught. Include an explanation of the symbols used, as well as the use of open and closed dots or points.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

5-4 Solving Inequalities

What You'll Learn

Scan Lesson 5-4. List two headings you would use to make an outline of this lesson.

1. _____

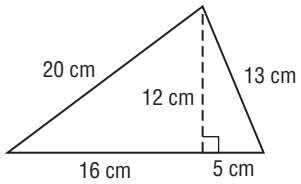
_____

2. _____

_____

Active Vocabulary

Review Vocabulary Use the diagram to fill in each blank with the correct term. *(Lesson 5-1)*



formula ▶

perimeter ▶

area ▶

The _____ for the triangle is 126 cm² and the _____ for the triangle is 54 cm.

$A = \frac{1}{2}bh$ is the _____ for the area of a triangle.

Vocabulary Link *Addition* and *Subtraction Properties* allow you to add or subtract the same quantities to each side of an equation or inequality with the sentence remaining true. List an example of something in everyday life that you have to do "the same on both sides" to keep it equal or the same.

_____

_____

_____

Lesson 5-4

Main Idea	Details
Solve Inequalities by Adding or Subtracting pp. 241–242	**Draw an arrow and match the correct property needed to solve the inequality. Then solve each inequality.**
Solve Inequalities by Multiplying or Dividing by a Positive Number pp. 242–243	
Multiply or Divide an Inequality by a Negative Number pp. 243–244	**Model the solution of the inequality on the number line.**

Subtraction Property of Inequality

Division Property of Inequality

Addition Property of Inequality

Multiplication Property of Inequality

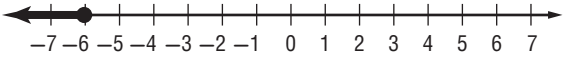
$9x \geq 27$ _____

$\frac{1}{3}x < 8$ _____

$10 \leq x - 9$ _____

$x + 18 > 36$ _____

$-4y \geq 24$



Helping You Remember

In the boxes below, write examples of inequalities in which the sign does and does not reverse. Write at least three examples in each box.

NAME _____ DATE _____ PERIOD _____

5-5 Solving Multi-Step Equations and Inequalities

What You'll Learn

Skim the Examples for Lesson 5-5. Predict two things you think you will learn about solving multi-step equations and inequalities.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lesson 4-1)*

Distributive Property ▶ To _____ a sum or difference by a number, _____ each term inside the _____ by the number outside of the _____.

New Vocabulary Write the definition next to each term.

null or empty set ▶ _____

_____

identity ▶ _____

_____

Vocabulary Link *Null* is a word that is used in everyday English. Find the definition of *null* using a dictionary. Explain how the English definition can help you remember how *null* is used in mathematics.

_____

_____

_____

Main Idea	Details

Solve Equations and Inequalities with Grouping Symbols
pp. 248–249

Complete the organizer by following the steps given to solve the inequality.

Steps in Solving Multi-Step Equations and Inequalities	$2(x - 3)$ $4(x + 3) - 6x$
Step 1: Use the Distributive Property to remove parentheses	**Step 1:**
↓	
Step 2: Combine like terms on same side	**Step 2:**
↓	
Step 3: Use the Addition or Subtraction Properties	**Step 3:**
↓	
Step 4: Use the Multiplication or Division Properties	**Step 4:**

No Solution or All Numbers as Solutions
p. 250

Write an equation that has a solution that is an identity. Then write an equation with a null or empty set.

identity:

null or empty set:

Helping You Remember

An identity is an equation that is true for every value of the variable. A null or empty set occurs when an equation has no solution. Write and solve an example of each type of equation.

_____

_____

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Multi-Step Equations and Inequalities

Tie It Together

Complete the graphic organizer to compare and contrast equations and inequalities.

	Multi-Step Equations	Inequalities
Symbol(s)		
Steps to solve		
Graph		

NAME _____ DATE _____ PERIOD _____

CHAPTER 5

Multi-Step Equations and Inequalities

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 5.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 5 Study Guide and Review in the textbook.

☐ I took the Chapter 5 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- On test day, look over the entire test to get an idea of its length and scope so that you can pace yourself. Answer what you know first, then go back and complete the problems you skipped. When finished, check for errors. Don't change an answer unless you are certain you are correct.

NAME _____ DATE _____ PERIOD _____

CHAPTER 6

Ratio, Proportion, and Similar Figures

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Ratio, Proportion, and Similar Figures
	• A ratio is a comparison of quantities by addition.
	• Unit rates are useful when comparing prices.
	• Ratios are used to change a measurement from one unit to another.
	• When two figures are proportional, they will have the same side and angle measures.
	• A scale drawing is sometimes proportional to the actual object.

FOLDABLES® Study Organizer

Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **To help you organize data, create study cards when taking notes, recording and defining vocabulary words, and explaining concepts.**
- **When taking notes, use a table to make comparisons about the new material.** Determine what will be compared, decide what standards will be used, and then use what is known to find similarities and differences.

NAME _____ DATE _____ PERIOD _____

CHAPTER 6

Ratio, Proportion, and Similar Figures

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on solving proportions, one fact might be that the cross products of any proportion are equal. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
6-1 Ratios	
6-2 Unit Rates	
6-3 Converting Rates and Measurements	
6-4 Proportional and Nonproportional Relationships	
6-5 Solving Proportions	
6-6 Scale Drawings and Models	
6-7 Similar Figures	
6-8 Dilations	
6-9 Indirect Measurement	

NAME _____ DATE _____ PERIOD _____

6-1 Ratios

What You'll Learn

Scan Lesson 6-1. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Define *simplify* in your own words. *(Lesson 1-3)*

simplify ▶ _____

_____

New Vocabulary Fill in each blank with the correct term or phrase.

ratio ▶ a _____ of two _____ by division that is usually written in _____ form

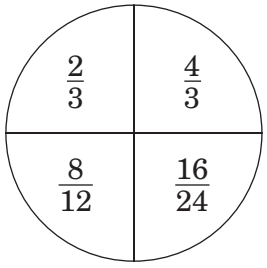
Vocabulary Link *Ratio* is a word that is used in everyday English. Find the definition of *ratio* using a dictionary. List two examples of real-life ratios.

_____

_____

_____

_____

Main Idea	Details
Write Ratios as Fractions in Simplest Form pp. 265–266	**Cross out the ratio that is not equivalent to the following ratio.** *16 girls out of 24 students* 
Simplify Ratios Involving Measurements p. 266	**Write each ratio in simplest form.** **1.** 15 cans out of 9 cases = ☐ **2.** 4 rings to 7 bracelets = ☐ **3.** 2 c to 32 oz = ☐ **4.** 16 in. to 4 ft = ☐ **5.** 11 dramas out of 17 DVDs = ☐ **6.** 6 hours 14 days = ☐

Helping You Remember

Ratios can represent part to part, part to whole, or whole to part relationships. Write a problem that can be expressed with these three ratios. Include the ratios in your description.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-2 Unit Rates

What You'll Learn

Skim the Examples for Lesson 6-2. Predict two things you think you will learn about unit rates.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lesson 5-1)*

area ▶ The _____ of the _____ enclosed by a figure.

New Vocabulary Write the definition next to each term.

rate ▶ _____

_____

unit rate ▶ _____

_____

Vocabulary Link *Rate* is a word that is used in everyday English. Find the definition of *rate* using a dictionary. Write two examples of rates used in everyday life.

_____

_____

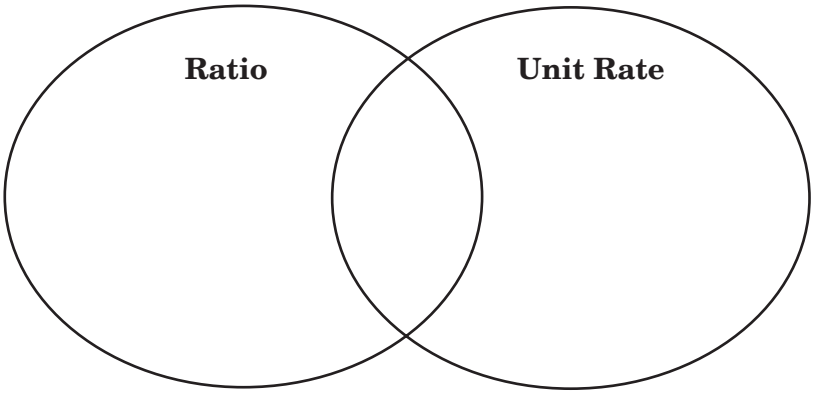
_____

Lesson 6-2

Main Idea	Details

Find Unit Rates
p. 270

Complete the Venn diagram by writing the phrases in the correct position. Use the phrases below the diagram.



usually a fraction
4 miles to 1,000 feet
has 1 in numerator
5 inches per second
same units
different units
uses "out of"
uses "per"

Compare Unit Rates
p. 271

Fill in each blank with <, >, or = to compare the unit rates.

1. 10 notebooks for \$12 ☐ 15 notebooks for \$18.75

2. 12 cans for \$4.20 ☐ 20 cans for \$6

3. 171 miles with 9 gallons ☐ 300 miles with 15 gallons

4. 4,000 ft in 16 seconds ☐ 7,500 ft in 30 seconds

5. 77 pages in 1 hour ☐ 108 pages in 120 minutes

Helping You Remember

The word rate is part of the term *unit rate.* Explain how a rate can be written as a unit rate.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-3 Converting Rates and Measurements

What You'll Learn

Skim Lesson 6-3. Predict two things that you expect to learn based on the headings.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lesson 4-3)*

_____ ▶ a mathematical sentence that contains an equals sign, (=), showing that two expressions are equal

_____ ▶ a value for the variable that makes an equation true

_____ ▶ operations that "undo" each other

New Vocabulary Fill in each blank with the correct term or phrase.

dimensional analysis ▶ the process of including _____ of _____ as factors when you compute

Vocabulary Link *Analysis* is a word that is used in everyday English. Find the definition of *analysis* using a dictionary. Explain how the English definition can help you remember how *analysis* is used in mathematics.

_____

_____

_____

_____

Lesson 6-3

Main Idea	Details

Dimensional Analysis
pp. 275–276

Fill in each conversion factor and solve each problem.

1. Convert 8 cups of juice per 1 gallon of water to cups of juice per quart of water.

$$\frac{8 \text{ cups}}{1 \text{ gallon}} \cdot \frac{1 \text{ gallon}}{\square \text{ quarts}} = \square$$

2. Convert 110 millimeters per meter to millimeters per centimeter.

$$\frac{110 \text{ mm}}{1 \text{ m}} \cdot \frac{1 \text{ m}}{\square} = \square$$

3. Convert 80 ounces per minute to ounces per second.

$$\frac{80 \text{ oz}}{1 \text{ min}} \cdot \frac{\square}{\square} = \square$$

Convert Between Systems
pp. 276–277

Fill in the diagram to complete the steps to convert between measurement systems. Use the terms *simplify, ratio, divide, and conversion factor*.

Step 1	Step 2	Step 3
Set up a _____ of the measurement you are converting.	Write a _____ using the units you are converting to.	_____ out common units and then _____.

Helping You Remember

Describe how to convert 18 pounds to kilograms. In the conversation factor, which quantity is in the numerator and which quantity is in the denominator?

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-4 Proportional and Nonproportional Relationships

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match the term with the correct definition by drawing a line to connect the two. *(Lessons 6-1 and 6-2)*

ratio	a simplified rate with a denominator of 1
unit rate	a ratio with two quantities that have different kinds of units
rate	comparison of two quantities by division

New Vocabulary Write the correct term next to each definition.

_____ ▶ the relationship between two quantities where the ratio or rate is *not* constant

_____

_____ ▶ a constant ratio or unit rate of a proportion

_____ ▶ a relationship where two quantities have a constant ratio or rate

Main Idea	Details

Identify Proportions
pp. 281–282

Fill in the organizer about proportions.

What are proportions?	How can proportions be written with numbers?
Examples	**Nonexamples**

Proportions

Describe Proportional Relationships
p. 282

Fill in the blanks so that each table represents a proportional relationship.

1.

cups of juice	2	4	6	8
cups of water	6			

2.

oranges	1		3	
apples	4	8		16

3.

cats	3	9		
dogs	5		25	35

Helping You Remember

All relationships can be classified as either proportional or nonproportional. Think of six examples of numerical relationships that you use on a daily basis and classify each as proportional or nonproportional.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-5 Solving Proportions

What You'll Learn

Scan the text in Lesson 6-5. Write two facts you learned about solving proportions.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lesson 4-3)*

equation ▶ _____

_____

_____

solution ▶ _____

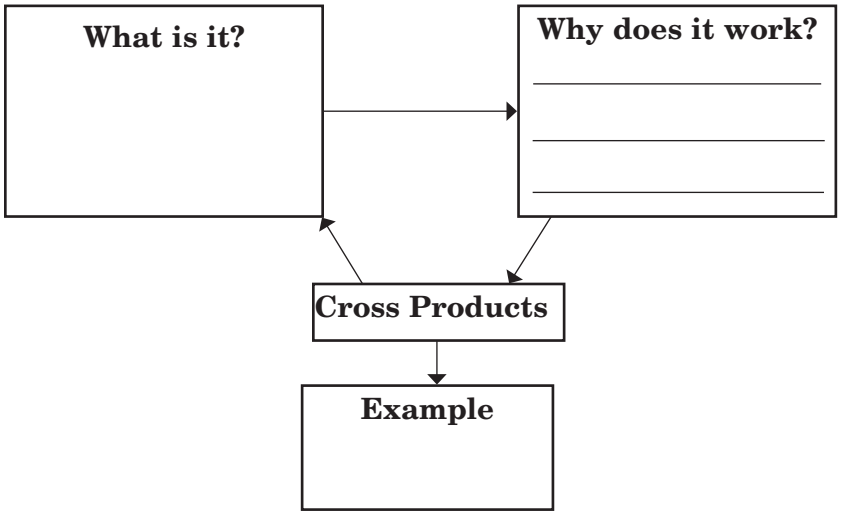
_____

New Vocabulary Fill in each blank with the correct word or phrase.

proportion ▶ an _____ that states that two _____ or rates are _____

cross products ▶ If $\frac{a}{b} = \frac{c}{d}$, then _____ = _____.

Main Idea	Details
Proportions pp. 287–288	**Complete the organizer for cross products.**



Use Proportions to Solve Problems
pp. 288–289

Fill in each blank with a ratio that forms a proportion.

1. $\frac{4}{12} = \square$

2. $\frac{10}{20} = \square$

3. $\frac{3.0}{1.8} = \square$

4. $\frac{7}{28} = \square$

Helping You Remember

Proportion is a common word in the English language. Use a dictionary to look up its definition. Explain how the definition from the dictionary can help you remember the mathematical definition of *proportion*.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-6 Scale Drawings and Models

What You'll Learn

Skim the lesson. Write two things you already know about scale drawings and models.

1. _____

_____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with the correct definition by drawing a line to connect the two.

scale factor	a ratio of a given length on a scale model or drawing to its corresponding length on the actual object
scale model	a diagram used to represent an object that is too large or small to be drawn at actual size
scale	the relationship between the measurements on a drawing or model and the measurements of the real object
scale drawing	a model used to represent an object that is too large or small to be built at actual size

Vocabulary Link *Scale* is a word that is used in everyday English. Find the definition of *scale* using a dictionary. Explain how the English definition can help you remember how *scale* is used in mathematics.

_____

_____

_____

Main Idea	Details

Use Scale Drawings and Models

pp. 294–295

Fill in the table using the information provided.

The actual measurements of a 5-room apartment are in the table below. Use the scale of $\frac{1}{2}$ in. = 4 ft to find the missing lengths of the drawing.

Room	Living room	Kitchen	Bathroom	Bedroom #1	Bedroom #2
Actual length (ft)	14	10	6	8	12
Drawing length (in.)					

Construct Scale Drawings

p. 296

Construct a scale drawing of the floor plan of the 5-room apartment above using the values you calculated for the lengths of each room.

Helping You Remember

Explain how a scale is different than a scale factor.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

6-7 Similar Figures

What You'll Learn

Scan Lesson 6-7. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition of *proportion* in your own words. *(Lesson 6-4)*

proportion ▶ _____

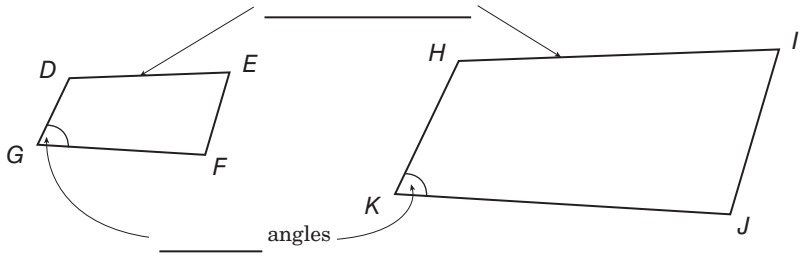
_____

New Vocabulary Quadrilateral *DEFG* ~ quadrilateral *HIJK*. Label the diagram with the correct terms. Use each term once.

similar figures ▶

corresponding parts ▶

congruent ▶



DEFG and *HIJK* are _____.

Vocabulary Link *Similar* and *congruent* are two words used in everyday English. Find the definitions of *similar* and *congruent* using a dictionary.

_____

_____

_____

Lesson 6-7

Main Idea

Details

Corresponding Parts of Similar Figures

pp. 301–302

Use the triangles below.

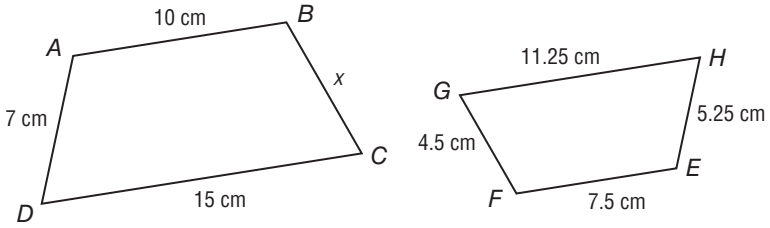
List the congruent angles.	**List the corresponding sides.**
_____	_____
_____	_____

Scale Factors

p. 303

Fill in each blank to answer the questions about the figures below.

ABCD ~ *EFGH*



1. List all the corresponding sides. _____

2. List all the congruent angles.

_____

3. What is the scale factor? _____

4. What is the value of x? _____

Helping You Remember

Make a list of what you learned about similar figures.

_____

_____

NAME _____ DATE _____ PERIOD _____

6-8 Dilations

What You'll Learn

Skim the Examples for Lesson 6-8. Predict two things you think you will learn about dilations.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match the term with its definition by drawing a line to connect the two. *(Lessons 1-4 and 2-7)*

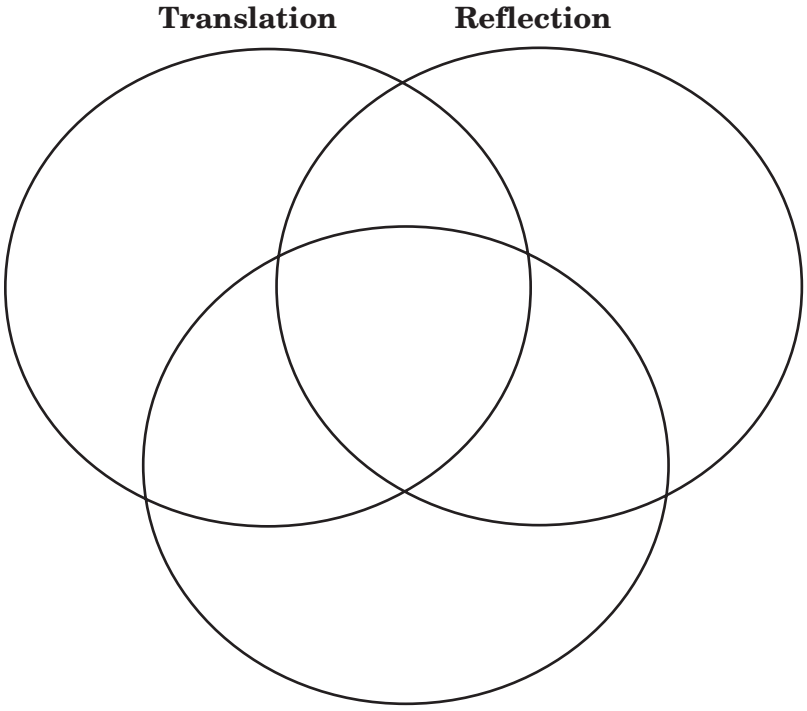
x-coordinate	a pair of numbers used to locate any point on a coordinate plane
ordered pair	second number in an ordered pair
coordinate plane	movement of a geometric figure
y-coordinate	first number in an ordered pair
transformation	formed by the intersection of two number lines that meet at right angles at their zero points

New Vocabulary Fill in each blank with the correct term or phrase.

dilation ▶ a _____ that enlarges or reduces a figure by a _____ factor

Lesson 6-8

Main Idea	Details
Dilations pp. 307–309	**Compare and contrast the three types of transformations by completing the diagram below, using the terms under the diagram.**



slide	*changes size (unless $k = 1$)*
enlarge or reduce	*same size*
keeps original shape	*changes orientation*
same orientation	*results in similar figures*

Helping You Remember

Dilation is a word used in everyday English as well as in mathematics. Write the definition of *dilation*. Explain how the English definition can help you remember how *dilation* is used in mathematics.

_____

_____

NAME _____ DATE _____ PERIOD _____

6-9 Indirect Measurement

What You'll Learn

Skim the Examples for Lesson 6-9. Predict two things that you will learn about indirect measurement.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lessons 6-5 and 6-7)*

_____ ▶ a statement of equality of two or more ratios

_____ ▶ If $\frac{a}{b} = \frac{c}{d}$, then $ad = cb$.

_____ ▶ figures that have the same shape but not necessarily the same size

New Vocabulary Fill in each blank with the correct term or phrase.

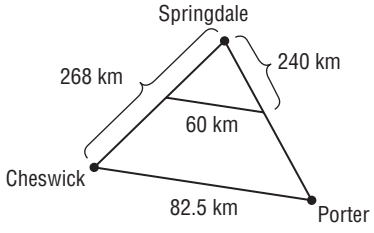
indirect measurement ▶ allows you to use the properties of _____ to find measurements that are difficult to measure _____

Vocabulary Link *Indirect* is a word that is used in everyday English. Find the definition of *indirect* using a dictionary. Explain how the English definition can help you remember how *indirect* is used in mathematics.

_____

_____

_____

Main Idea	Details
Indirect Measurement p. 313	**Model the following situation with a labeled drawing. Then solve.** A flagpole casts a shadow that is 32 feet long. At the same time, a statue that is 7 feet tall casts a shadow that is $17\frac{1}{2}$ feet long. How tall is the flagpole?
Surveying Methods p. 314	**Fill in the blank of the missing measure.** The triangles below are similar. What is the distance from Springdale to Porter? 

Helping You Remember

Write a paragraph explaining how to find a missing measurement using similar triangles to a classmate that was absent from class the day it was taught. Include an example.

_____

_____

_____

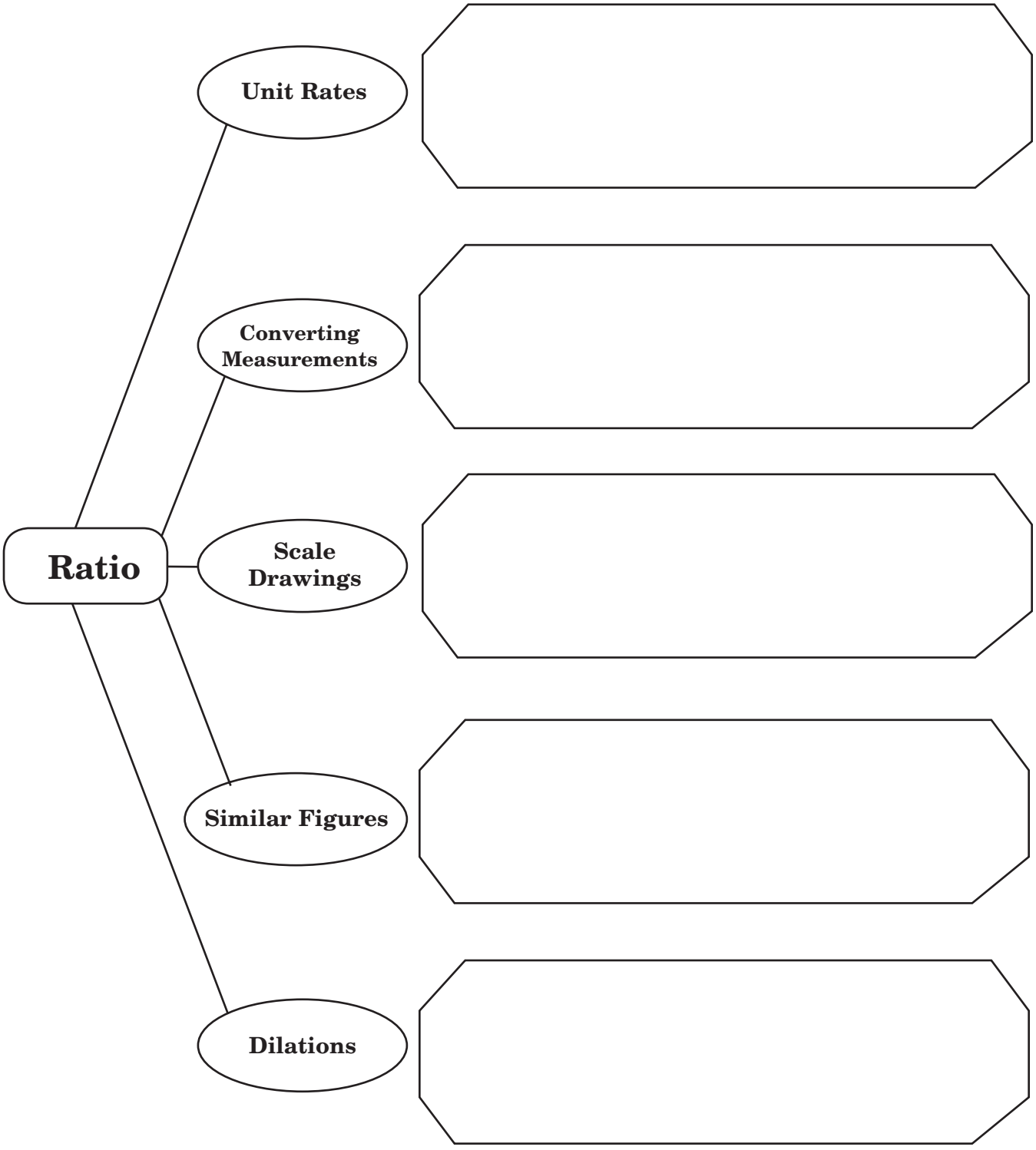
NAME _____ DATE _____ PERIOD _____

CHAPTER 6

Ratio, Proportion, and Similar Figures

Tie It Together

Describe how ratios are used in each application.



NAME _____ DATE _____ PERIOD _____

CHAPTER 6

Ratio, Proportion, and Similar Figures

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Ratio, Proportion, and Similar Figures	After You Read
• A ratio is a comparison of quantities by addition.	
• Unit rates are useful when comparing prices.	
• Ratios are used to change a measurement from one unit to another.	
• When two figures are proportional, they will have the same side and angle measures.	
• A scale drawing is sometimes proportional to the actual object.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 6.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 6 Study Guide and Review in the textbook.

☐ I took the Chapter 6 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- You will do better on a test if you are relaxed. If you feel anxious, try some deep breathing exercises. Don't worry about how quickly others are finishing. Do your best and use all the time that is available to you.

NAME _____ DATE _____ PERIOD _____

CHAPTER 7 Percent

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Percent
	• A percent is a comparison of a number and 100.
	• To write a decimal as a percent, divide by 100.
	• Percents can be written in fraction, decimal, or percent form.
	• A percent proportion is solved with cross products.
	• The percent equation can only be used with percents in their fraction form.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When taking notes, write clean and concise explanations.**
  Someone who is unfamiliar with the math concepts should be able to read your explanations and learn from them.
- **If your instructor points out definitions or procedures from your text, write a reference page in your notes.**
  You can then write these referenced items in their proper place in your notes after class.

NAME _____ DATE _____ PERIOD _____

CHAPTER 7

Percent

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on simple and compound interest, one fact might be that the formula used to solve simple interest problems is $I = prt$. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
7-1 Fractions and Percents	
7-2 Fractions, Decimals, and Percents	
7-3 Using the Percent Proportion	
7-4 Find Percent of a Number Mentally	
7-5 Using Percent Equations	
7-6 Percent of Change	
7-7 Simple and Compound Interest	
7-8 Circle Graphs	

NAME _____ DATE _____ PERIOD _____

7-1 Fractions and Percents

What You'll Learn

Scan Lesson 7-1. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lessons 6-1 and 6-4)*

_____ ▶ a comparison of two quantities by division that is often written in fraction form

_____ ▶ describes the relationship between two quantities where the ratio or rate is not constant

_____ ▶ the k in the equation $y = kz$

_____ ▶ a relationship where two quantities have a constant ratio or rate

New Vocabulary Write the definition next to the term.

percent ▶ _____

_____

Vocabulary Link *Percent* is a word that is used in everyday English. Find the definition of *percent* using a dictionary. List two examples of everyday uses of *percents*.

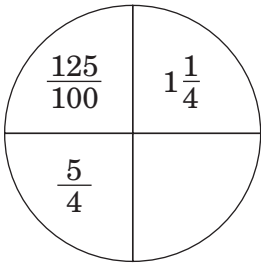
_____

_____

Main Idea	Details

Percents as Fractions
pp. 331–332

Fill in the fraction that completes the circle. Then define the relationship between the four parts.



The relationship:

Fractions as Percents
pp. 332–333

Fill in each blank of the proportion to find the percent following the given steps.

What percent is 16 out of 24?

$\frac{16}{24} = \square$ Write a proportion.

$\square \cdot \square = \square \cdot \square$ Cross products are equal.

$\square = \square$ Multiply.

$\square = n$ Simplify.

So, $\frac{16}{24} = \square$ or $\square$

Helping You Remember

Write and solve two questions where you would use proportions and percents to solve.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

7-2 Fractions, Decimals, and Percents

What You'll Learn

Skim the lesson. Write two things you already know about fractions, decimals, and percents.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lessons 6-1, 6-5, and 7-1)*

ratio ▶ a _____ of two quantities by _____ that is usually written in _____ form

percent ▶ a _____ that compares a number to ____

proportion ▶ an _____ that states that two _____ or rates are _____

cross products ▶ If $\frac{a}{b} = \frac{c}{d}$, then _____ = _____.

Vocabulary Link The historical form of *percent* was *per cent*. Use a dictionary to look up the words *per* and *cent*. Relate these two meanings to the current definition of *percent*.

_____

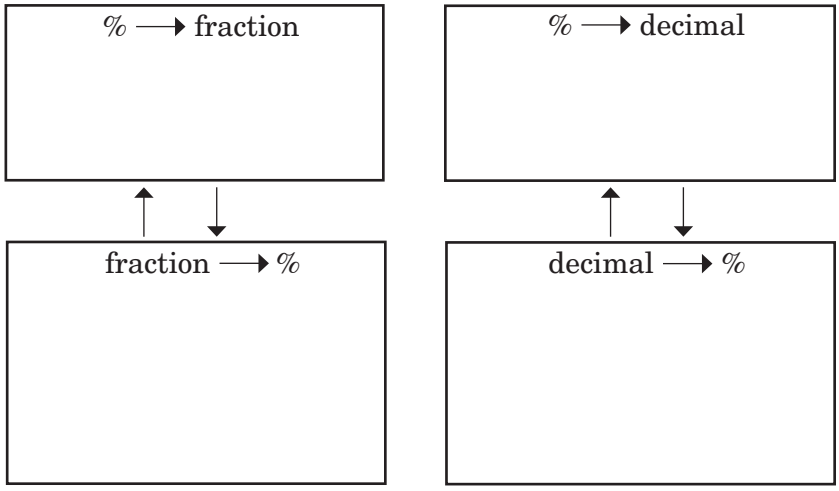
_____

_____

_____

Lesson 7-2

Main Idea	Details
Percents and Decimals pp. 337–339	**Complete the diagram by filling out each box with a description and example of each process described.**



Compare Fractions, Decimals, and Percents p. 339	**At a local school, 22% of students walk to school, 0.35 take the bus, and three eighths are driven in a car. The rest of the students ride their bikes. Which of these groups are the largest?**

_____

_____

_____

Helping You Remember

Suppose you are a percent. Write a paragraph describing your experiences as a percent.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

7-3 Using the Percent Proportion

What You'll Learn

Skim the Examples in Lesson 7-3. Predict two things that you think you will learn about using percent proportions.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match the term with its definition by drawing a line connecting the two. *(Lessons 4-3, 6-1, and 6-5)*

equation	a ratio that compares a number to 100
cross products	a mathematical sentence that contains an equals sign, (=), showing that two expressions are equal
proportion	an equation that states that two ratios or rates are equal
percent	If $\frac{a}{b} = \frac{c}{d}$, then $ad = cb$.

New Vocabulary Write the definition next to the term.

percent proportion ▶ _____

_____

Vocabulary Link *Percent* and *proportion* are words that are used in everyday English. Find the definition of *percent* and *proportion* using a dictionary. How can their individual definitions help you remember what a percent proportion is?

_____

_____

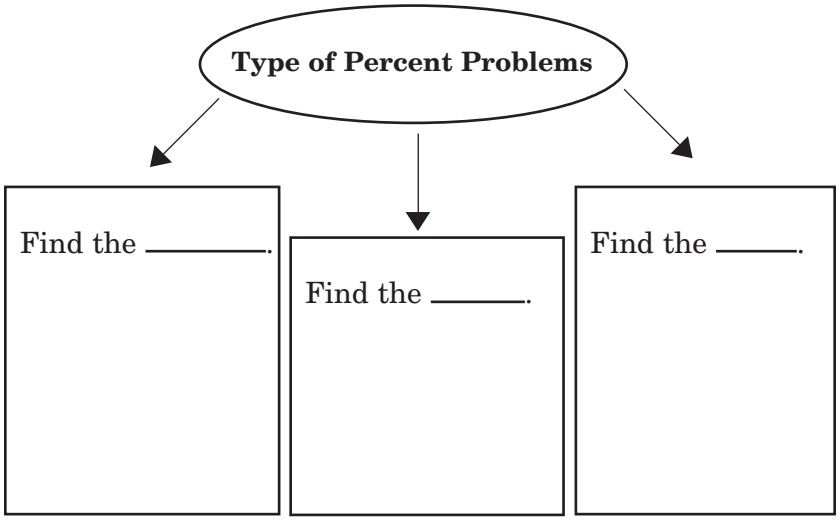
_____

_____

Lesson 7-3

Main Idea	Details
The Percent Proportion pp. 345–347	**Complete the model for the *percent proportion*.** $\frac{\square}{\square} = \frac{\square}{\square}$

Complete the organizer. Write the types of percent problems. Then write a word problem to show an example for each.



Helping You Remember

Fill in each blank to identify the whole, the part, and the percent in the following percent proportion.

$$\frac{13}{20} = \left(\frac{65}{100}\right)$$

NAME _____ DATE _____ PERIOD _____

7-4 Find Percent of a Number Mentally

What You'll Learn

Skim Lesson 7-4. Predict two things you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lessons 6-2, 6-5, 7-1, and 7-2)*

_____ ▶ a ratio that compares a number to 100

_____ ▶ a ratio that compares part of a quantity to the whole quantity

_____ ▶ a ratio of two quantities that have different kinds of units

_____ ▶ an equation that states two ratios or rates are equal

Vocabulary Link *Mental* and *math* are both words used in everyday English. Look up *mental* and *math* in the dictionary. Explain how the two words fit together to be the *mental math* that is used in everyday mathematics.

_____

_____

_____

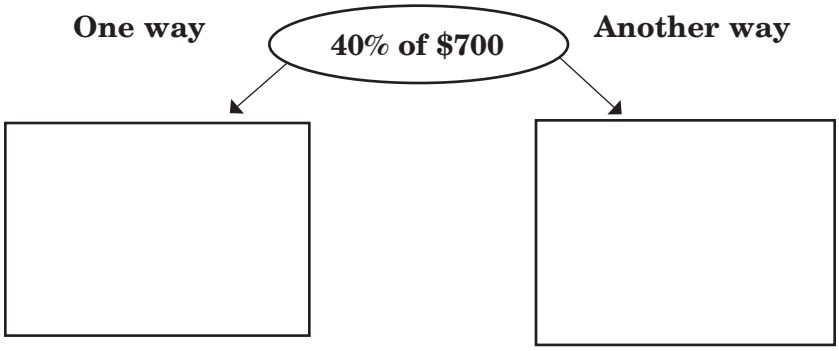
_____

Lesson 7-4

Main Idea	Details

Find Percent of a Number Mentally
pp. 351–352

Complete the organizer with two ways that you can mentally find 40% of $700.



Estimates with Percents
pp. 352–353

Fill in the table with the mental strategy of how you found the estimate. Use a different strategy each time.

Estimate the Answer	Describe your Strategy
150% of 98	
76% of 160	
$\frac{1}{2}$% of 280	

Helping You Remember

There are situations when an exact answer is needed. There are other times when an estimate is good enough. Give examples of when an exact answer and an estimate are appropriate. Explain your reasoning.

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

7-5 Using Percent Equations

What You'll Learn

Scan the text in Lesson 7-5. Write two facts you learned about solving using percent equations as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term. *(Lessons 4-3, 6-5, and 7-3)*

proportion ▶ _____

_____

percent proportion ▶ _____

_____

equation ▶ _____

_____

cross products ▶ _____

New Vocabulary Fill in each blank with the correct term or phrase.

percent equation ▶ an _____ form of the _____ in which the percent is written as a _____

Main Idea	Details

Percent Equations
pp. 357–359

Complete the organizer. Write the type of percent problem using the terms part, whole, and percent. Then solve using the percent equation.

Percent Equation
part = percent × whole

82.5 is what percent of 550?	**What is 15% of 142?**	**14 is 20% of what number?**
Find the _____.	Find the _____.	Find the _____.
_____	_____	_____
_____	_____	_____

Fill in each blank using the information below.

Terri and Kraig each bought an MP3 player. Terri paid $45 minus an 18% discount. Kraig has a coupon for 15% off, which is a $6 discount.

1. What is the original price of Kraig's player? ☐
2. How much did Terri pay after her discount? ☐
3. Suppose Kraig pays 6.5% and Terri pays 6% sales tax. How much did Kraig and Terri spend total for both players, including tax? Round to the nearest cent if needed. ☐

Helping You Remember

The label over each oval represents what is missing from a percent equation. In each oval, write and solve a percent equation to find that missing information.

Missing Whole | **Missing Part** | **Missing Percent**

NAME _____ DATE _____ PERIOD _____

7-6 Percent of Change

What You'll Learn

Skim Lesson 7-6. Predict two things that you expect to learn based on the headings and Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with the correct definition by drawing a line to connect the two.

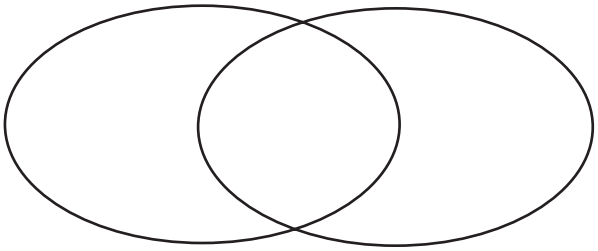
percent of decrease	ratio that compares the change in quantity to the original amount
selling price	the amount the price of an item is increased above the price the store paid for an item
discount	a positive percent of change
percent increase	total amount consumer pays for item
markup	a negative percent of change
percent of change	the amount by which the regular price of an item is reduced

Vocabulary Link *Percent change* is a term that is used in everyday English. List two ways in which *percent change* is used in everyday life.

_____

_____

_____

Main Idea	Details
Find Percent of Change pp. 364–365	**Find the percent of change. Round to the nearest tenth if necessary. Then fill in each blank with either *percent increase* or *percent decrease*.** **1.** from 89º to 77º _____ percent of _____. **2.** from \$45 to \$58 _____ percent of _____. **3.** In her first week of training, Cherie ran 5.4 miles. Six weeks later she ran 7.1 miles. What is the percent change in the 6 weeks? _____ **4.** Marcus weighed 113 pounds at the start of wrestling season and 106 pounds at the end. What is the percent change from the start to the end of the season? _____
Using Markup and Discount pp. 365–366	**Complete the Venn diagram for the terms *markup* and *discount*. Use the terms *percent increase, percent decrease, percent of change, positive, and negative*.** **Markup** **Discount** 

Helping You Remember

For a percent of increase, is the percent of change always positive or negative? Why? For a percent of decrease, is the percent of change always positive or negative? Why?

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

7-7 Simple and Compound Interest

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

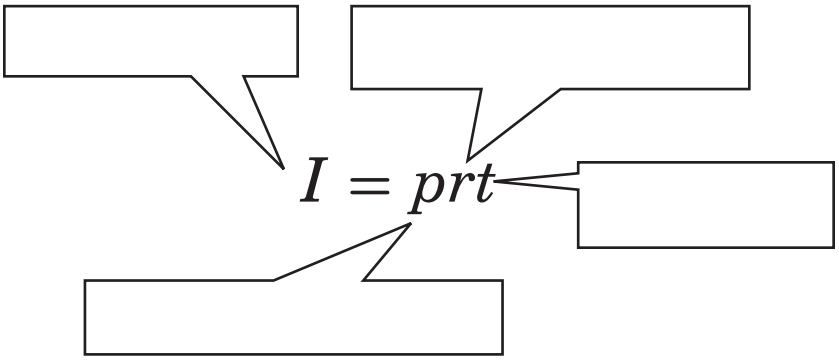
New Vocabulary Label the diagram with the correct terms.

principal ▶

interest ▶

annual interest rate ▶

time year ▶



Vocabulary Link *Principal* is a word used in everyday English as well as in mathematics. Write the definition of *principal*. Explain how the English definition can help you remember how *principal* is used in mathematics.

_____

_____

_____

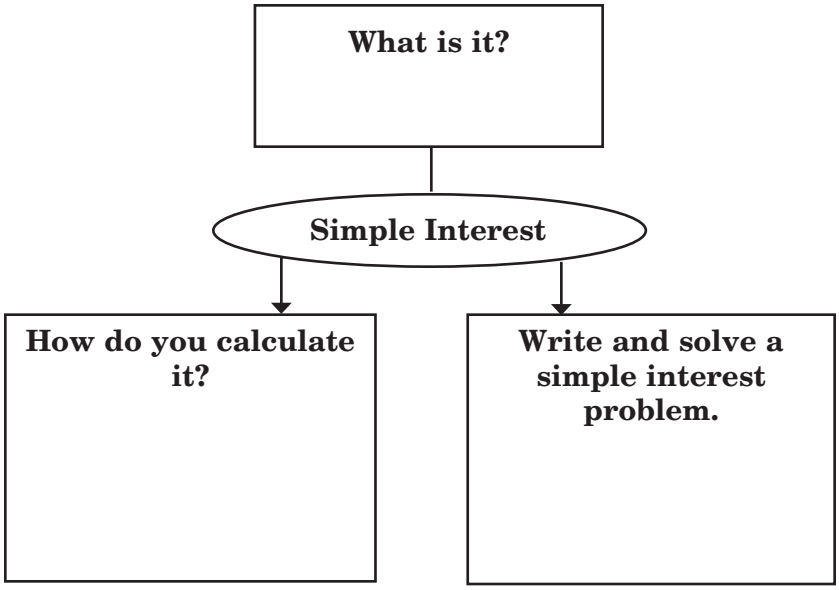
_____

Lesson 7-7

Main Idea	Details

Simple Interest
pp. 370–371

Complete the organizer. Sample answers are given.



Compound Interest
p. 371

Compare the two types of interest.

Types of Interest	Description
Simple	
Compound	

Helping You Remember

Write a real-world problem dealing with compound interest. Find the answer then trade with a partner and solve.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

7-8 Circle Graphs

What You'll Learn

Skim the Examples for Lesson 7-8. Predict two things you think you will learn about circle graphs.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. *(Lessons 3-1 and 7-1)*

_____ ▶ a decimal whose digits end

_____ ▶ a decimal whose digits repeat in groups of one or more without end

_____ ▶ a ratio that compares a number to 100

New Vocabulary Write the definition next to the term.

circle graph ▶ _____

_____

Vocabulary Link A circle graph displays data. Look up *data* in a dictionary. Find a sentence in the lesson that uses that word.

Definition: _____

Sentence: _____

_____

_____

Lesson 7-8

Main Idea	Details

Circle Graphs
pp. 376–377

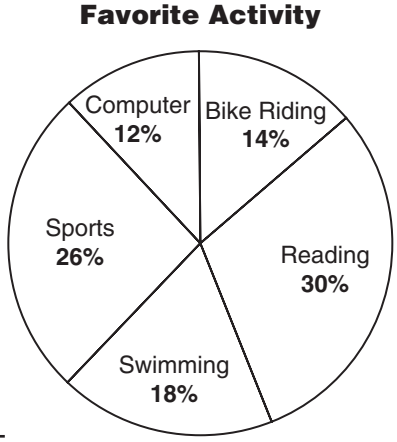
Model a circle graph by following the steps below.

Count the number of students in your classroom. Then count the number of students that are wearing various colored shirts. For example, there may be 7 students wearing blue shirts, 3 wearing pink shirts, and 6 wearing white shirts. Construct and label a circle graph with your data.

Analyze Circle Graphs
p. 378

Answer each question using the circle graph.

250 students were surveyed about their favorite activities. The results are in the circle graph.



How many students favor computer? ___

How many more students favor sports than favor swimming? ___

Which activity is most favored?

_____

Helping You Remember

Describe how to construct a circle graph in detail to a classmate who was absent.

_____

_____

_____

_____

_____

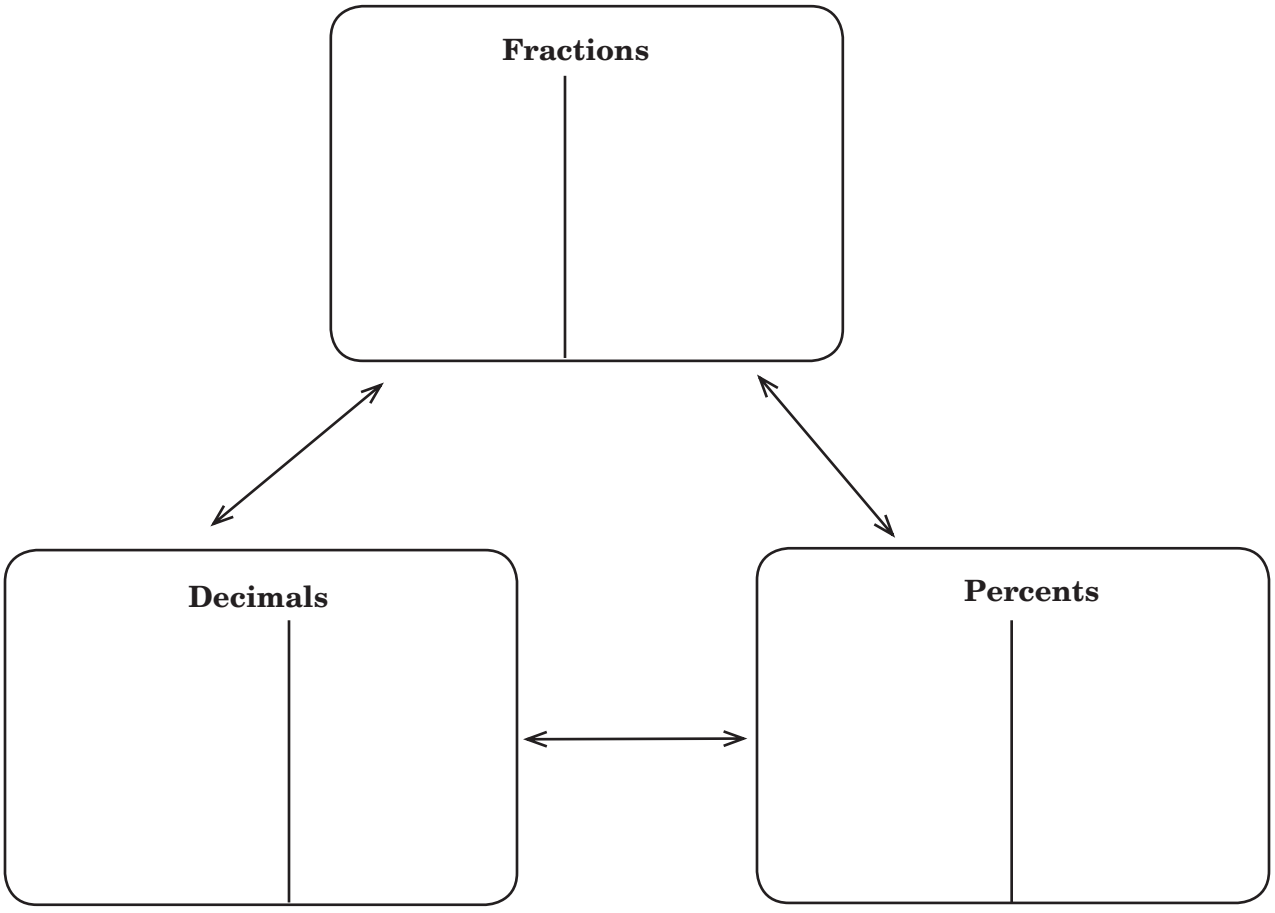
NAME _____ DATE _____ PERIOD _____

CHAPTER 7

Percent

Tie It Together

Use the fraction $\frac{3}{4}$ to show how to convert to different forms of numbers.



Complete the proportion with the words “part”, “whole”, and the symbols % and 100.

NAME _____ DATE _____ PERIOD _____

CHAPTER 7 Percent

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Percent	After You Read
• A percent is a comparison of a number and 100.	
• To write a decimal as a percent, divide by 100.	
• Percents can be written in fraction, decimal, or percent form.	
• A percent proportion is solved with cross products.	
• The percent equation can only be used with percents in their fraction form.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 7.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 7 Study Guide and Review in the textbook.

☐ I took the Chapter 7 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Designate a place to study at home that is free of clutter and distraction. Try to study at about the same time each afternoon or evening so that it is part of your routine.

NAME _____ DATE _____ PERIOD _____

CHAPTER 8 Linear Functions and Graphing

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Linear Function and Graphing
	• In a function, a member of the domain can be paired with more than one member of the range.
	• An arithmetic sequence has a common ratio between each term.
	• A linear function has both straight and curved lines.
	• If a rate of change is proportional, its graph will be a straight line.
	• In the equation $y = 5x + 3$, the slope is 3.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, write concise definitions in your own words.**
  Add examples that illustrate the concepts.
- **When taking notes, write down a question mark by anything you do not understand.**
  Before your next quiz, ask your instructor to explain these sections.

NAME _____ DATE _____ PERIOD _____

CHAPTER 8

Linear Functions and Graphing

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on slope, one fact might be that positive slopes represent a rate of increase. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
8-1 Functions	
8-2 Sequences and Equations	
8-3 Representing Linear Functions	
8-4 Rate of Change	
8-5 Constant Rate of Change and Direct Variation	
8-6 Slope	
8-7 Slope-Intercept Form	
8-8 Writing Linear Equations	
8-9 Prediction Equations	
8-10 Systems of Equations	

NAME _____ DATE _____ PERIOD _____

8-1 Functions

What You'll Learn

Skim the Examples for Lesson 8-1. Predict two things you think you will learn about functions.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match each term with its definition by drawing a line to connect the two.

function notation	a value that is chosen and does not depend on the other variable
independent variable	a value that depends on the input value
vertical line test	a way to write an equation using $f(x)$
dependent variable	use to determine if a graph is a function

Vocabulary Link *Independent* and *dependent* are two words used in everyday English. Find the definitions of *independent* and *dependent* using a dictionary. Write an example of a variable in everyday life that is *independent*. Write an example of a variable that is *dependent*.

_____

_____

_____

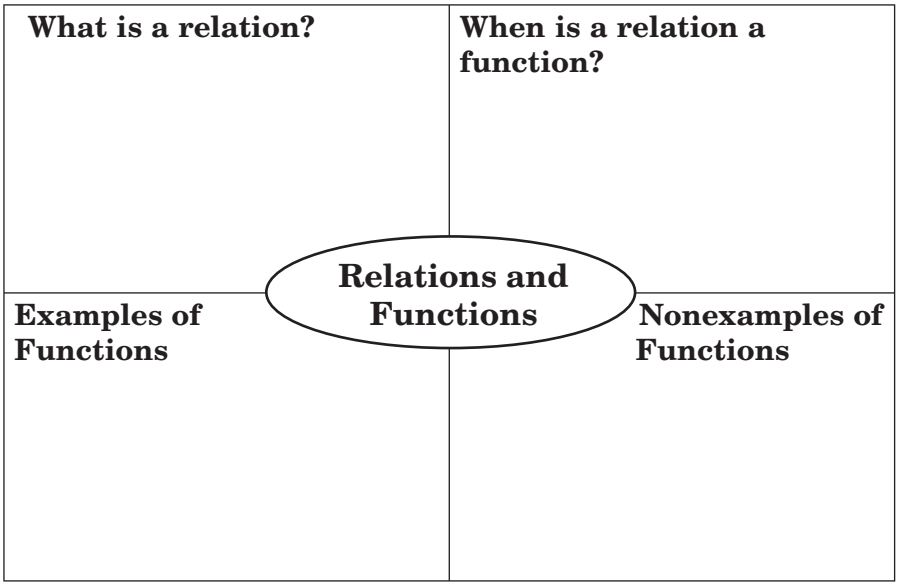
_____

_____

Main Idea	Details

Relations and Functions
pp. 395–396

Complete the organizer for *functions*.



Function Notation
p. 396

Write the equation in function notation. Label *both* forms with the terms *independent variable* and *dependent variable*.

Equation	Function Notation
$y = 4x - 5$	_____

Describe Relationships
p. 397

In the function above, what is the value of y if $x = 7$? ___

Helping You Remember

Explain how the vertical line test works to tell whether a relation is a function.

_____

_____

NAME _____ DATE _____ PERIOD _____

8-2 Sequences and Equations

What You'll Learn

Scan Lesson 8-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

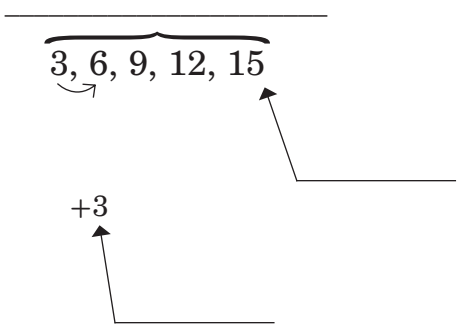
Active Vocabulary

New Vocabulary Label the diagram with the correct terms.

common difference ▶

arithmetic sequence ▶

term ▶



Main Idea

Describe Sequences
p. 401

Details

Fill in each blank to complete the arithmetic sequence.

Term Number (n)	1		3	
Term (t)	12		24	

The difference of the term numbers is __.

The common difference of the terms is __.

The equation that describes the sequence is _____.

Lesson 8-2

Main Idea **Details**

Finding Terms
p. 402

Complete the organizer to find a term in an arithmetic sequence.

To find a term in an arithmetic sequence...

14, 21, 28, 35, 42, 49, ...
Find the 11th term.

Step 1: Find the common difference. → **Step 1:**

Step 2: Write an equation to describe the sequence. → **Step 2:**

Step 3: Use the equation to find the term. → **Step 3:**

Helping You Remember

Suppose you are an arithmetic sequence. Write a paragraph describing your experiences.

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

8-3 Representing Linear Functions

What You'll Learn

Scan the text in Lesson 8-3. Write two facts you learned about representing linear functions as you scanned the text.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. (*Lesson 1-5*)

_____ ▶ a mathematical sentence stating that two quantities are equal

_____ ▶ a relation where each member of the domain is paired with exactly one member in the range

New Vocabulary Fill in each blank with the correct term or phrase.

linear equation ▶ an equation whose graph is a _____

x-intercept ▶ the _____ of the point at which the graph crosses the _____

y-intercept ▶ the _____ of the point at which the graph crosses the _____

Lesson 8-3

Main Idea	Details

Solve Linear Equations
pp. 406–407

Fill in the blanks to complete each table. Write the ordered pairs under the table.

1. $y = 3x + 1$

x	y
−2	
	1
	4
2	

_____

2. $y = -x + 2$

x	y
−1	
	2
2	0
3	−1

_____

Graph Linear Equations
pp. 407–408

Compare the two methods of graphing a linear function.

One Way:		Another Way:
Find the _____ by finding x when y = ____.	**Step 1**	Rewrite the _____ by solving for y.
Find the _____ by finding y when x = ____.	**Step 2**	Choose 4 values for x and find the _____ values for y.
Graph the _____ and connect them with a ____.	**Step 3**	Graph the _____ and connect them with a _____.

NAME _____ DATE _____ PERIOD _____

8-4 Rate of Change

What You'll Learn

Skim Lesson 8-4. Predict two things that you expect to learn based on the headings and the Key Concept Box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to the term.

rate of change ▶ _____

_____

Main Idea

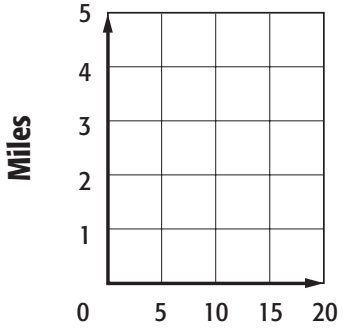
Rate of Change
pp. 412–414

Details

Model a graph with a *positive* and then a *negative* rate of change. Describe your graph with words.

Positive Rate of Change

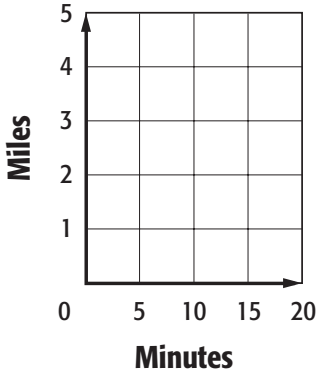
Time and Distance Traveled



_____
_____
_____
_____

Negative Rate of Change

Time and Distance Traveled



_____
_____
_____
_____

Lesson 8-4

Main Idea	Details

Summarize the following situation.

Emily is filling a bathtub with water. She turns the faucet on, and 7 minutes later when the bathtub is full, she turns the faucet off.

Describe the rate of change. How would the graph of the water flow appear?

_____

_____

_____

Describe another situation where the rate of change of the graph would appear the same.

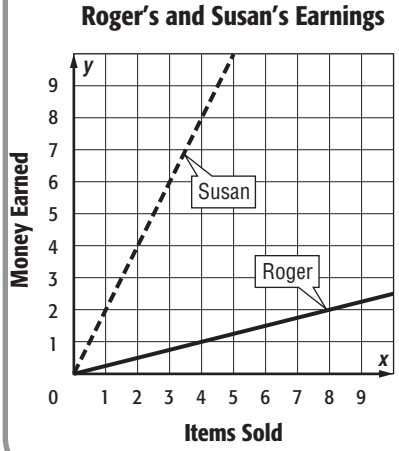
_____

_____

_____

Helping You Remember

The graph below shows the earnings of Roger and Susan. Compare the two rates of change by comparing the steepness of the lines.



_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

8-5 Constant Rate of Change and Direct Variation

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lessons 6-4 and 8-4)*

rate of change ▶ _____

_____

proportion ▶ _____

New Vocabulary Write the correct term next to each definition.

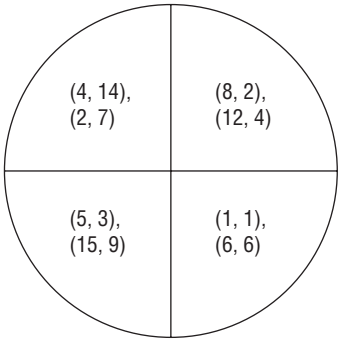
_____ ▶ the constant of proportionality, the k in the equation $y = kx$

_____ ▶ the relationship between two quantities that results in a straight-line graph

_____ ▶ when the ratio between two variable quantities is constant

_____ ▶ a linear relationship where the rate of change between any two data points is the same

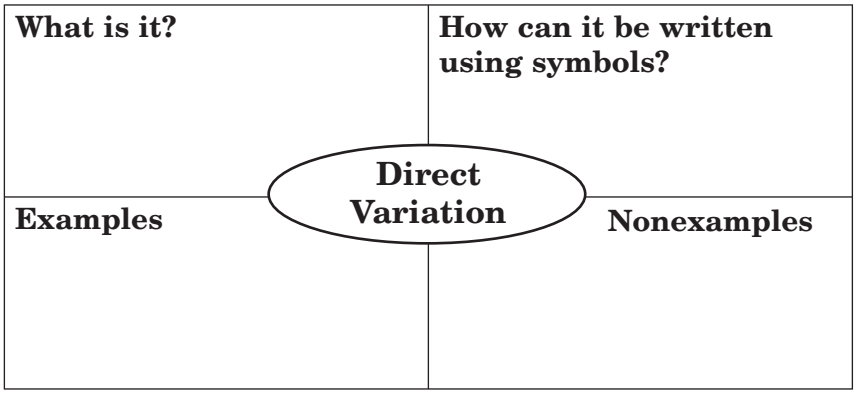
Main Idea	Details
Constant Rate of Change pp. 418–420	**Cross out the set of coordinates in the circle that do not belong. Then describe the relationship.**



The relationship is _____.

Direct Variation pp. 420–421

Fill in the organizer about *direct variation*.



Helping You Remember

All directly proportional relationships are linear, but not all linear relationships are proportional. Give an example of a linear relationship that has a constant rate of change but is not proportional.

_____

_____

NAME _____ DATE _____ PERIOD _____

8-6 Slope

What You'll Learn

Skim the lesson. Write two things you already know about slope.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lessons 6-1 and 8-5)*

ratio ▶ a _____ of two _____ by division that is often written in _____ form

constant rate of change ▶ a _____ where the rate of change between any two data points is _____

New Vocabulary Write the definition next to the term.

slope ▶ _____

_____

Main Idea

Slope
pp. 427–428

Details

Match the different types of slopes to the correct coordinates by drawing a line to connect the two.

positive slope	$A(2, 4)$, $B(2, 5)$
negative slope	$C(-5, 3)$, $D(-3, 2)$
undefined slope	$E(7, 4)$, $F(-7, 4)$
zero slope	$G(-1, -3)$, $H(-3, -5)$

Main Idea

Slope and Constant Rate of Change

pp. 428–429

Details

Complete the organizer to find the slope of a line. Fill in each blank to find the slope in the example.

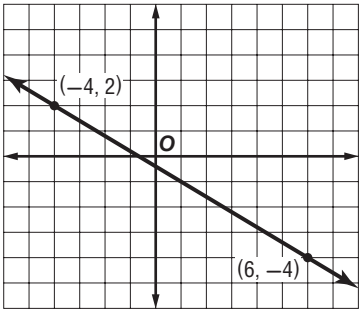
Find the slope of a line.

Step 1:
Label the coordinates as ( ) and ( ).

Step 2:
Substitute the coordinates into the _____.

Step 3: Simplify.

Find the slope of line.



Step 1: Substitute ( ) for (x_1, y_1) and ( ) for (x_2, y_2).

Step 2: Use the formula.

Step 3: Simplify.

Helping You Remember

Use words to describe how a line appears with the given slopes.

positive: _____

negative: _____

zero: _____

undefined: _____

NAME _____ DATE _____ PERIOD _____

8-7 Slope-Intercept Form

What You'll Learn

Skim the Example for Lesson 8-7. Predict two things you think you will learn about slope-intercept form.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. *(Lessons 6-5 and 8-3)*

_____ ▶ a statement of equality of two or more ratios

_____ ▶ an equation whose graph is a straight line

_____ ▶ the first number of an ordered pair

_____ ▶ the second number of an ordered pair

New Vocabulary Write the definition next to the term.

slope-intercept form ▶ _____

_____

Lesson 8-7

Main Idea	Details

Find Slope and *y*-intercept
pp. 433–434

Identify the slope and *y*-intercept in each equation.

1. $y = 4x + 5$ slope: ____ y-intercept: ____

2. $x + y = 6$ slope: ____ y-intercept: ____

3. $y + 3 = -7x$ slope: ____ y-intercept: ____

4. $-x - y = -2$ slope: ____ y-intercept: ____

Graph Equations
pp. 434–435

Complete the organizer by following the steps given to graph an equation.

Graph: $y = -3x - 4$

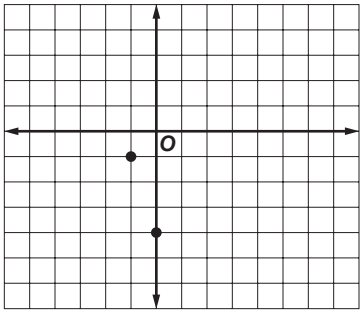
Step 1: Find the slope and *y*-intercept.

→ **Step 1:** slope: ____ *y*-intercept: ____

Step 2: Graph the *y*-intercept at (0, −4).

Step 3: Write the slope as $\frac{-3}{1}$. Use it to locate another point on the line.

Step 4: Draw a line through the 2 points and extend the line.



NAME _____ DATE _____ PERIOD _____

8-8 Writing Linear Equations

What You'll Learn

Skim Lesson 8-8. Predict two things that you expect to learn based on the headings and the Key Concept Box.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. (*Lessons 8-6 and 8-7*)

slope ▶ the ratio of the _____, or _____ change, to the _____, or _____ change of a line

slope-intercept form ▶ a linear _____ in the form _____, where __ is the slope and b is the _____

New Vocabulary Write the definition next to the term.

point-slope form ▶ _____

_____

_____

Lesson 8-8

Main Idea	Details

Write Equations in Slope-Intercept Form
pp. 441–442

Fill in each blank to write a linear equation given two points.

Given: (4, –5), and (–1, –3)

Find the slope: $m = \frac{\text{change of } y}{\text{change of } x} =$

Use $y - y_1 = m(x - x_1)$ form: $y - (\_\_\_) =$ _____ $(x - (\_\_\_))$.

Simplify to $y - mx + b$ form: $y =$ _____ − _____.

Solve Problems
pp. 443–444

Complete the chart by summarizing the procedure.

Writing Linear Equations	
Forms	**Procedure**
from slope and *y*-intercept	
from a graph	
from two points	
from a table	

NAME _____ DATE _____ PERIOD _____

8-9 Prediction Equations

What You'll Learn

Scan the text in Lesson 8-9. Write two facts you learned about prediction equations as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to the term. *(Lesson 1-6)*

scatter plot ▶ _____

_____

New Vocabulary Fill in each blank with the correct term or phrase.

line of fit ▶ a _____ that is drawn on a _____ that closely approximates the _____

Vocabulary Link In this lesson you will make *predictions* using a line or equation. *Prediction* is a word that is used in everyday English. Find the definition of *prediction* using a dictionary. Give an example of how *predictions* are used in everyday life.

_____

_____

_____

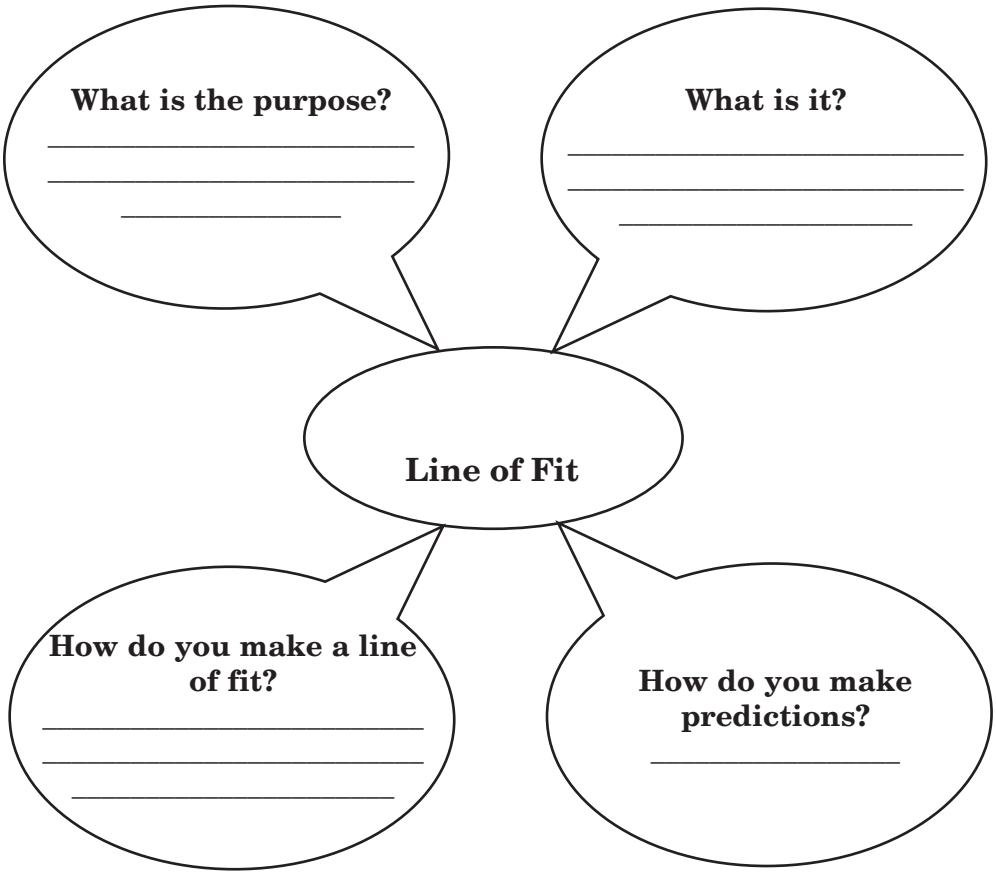
Lesson 8-9

Main Idea

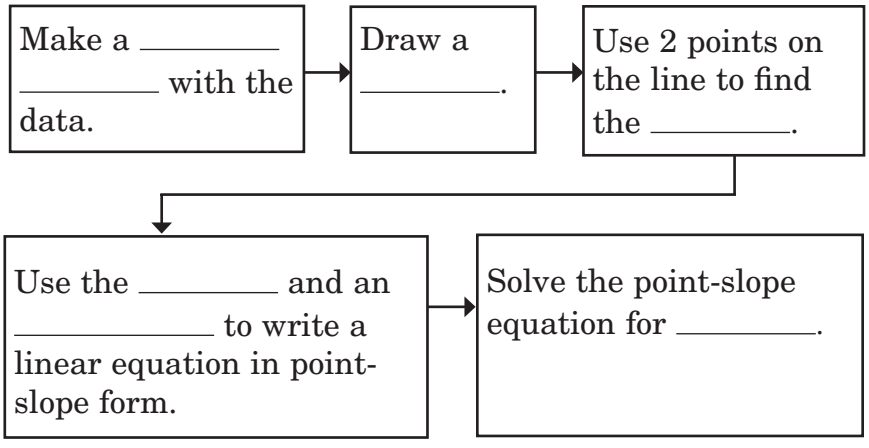
Lines of Fit
p. 448

Details

Complete the organizer about the *line of fit*.



Fill in each blank to complete the graphic organizer for finding the equation of a line of best fit.



NAME _____ DATE _____ PERIOD _____

8-10 Systems of Equation

What You'll Learn

Scan Lesson 8-10. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Fill in each blank with the correct term or phrase.

system of equations ▶ a set of two or more _____ with the same _____

substitution ▶ an _____ method of finding an exact _____ of a system of equations

Vocabulary Link *Substitution* is a word used in everyday English. Find the definition of *substitution* using a dictionary. Explain how the English definitions can help you remember how *substitution* is used in mathematics.

_____

_____

_____

_____

Main Idea	Details

Solve Systems by Graphing

pp. 453–454

Compare solutions by completing the chart.

Solutions for Systems of Equations		
Solution	**Description**	**Graph**
infinite solutions		
one solution		
no solutions		

Solve Systems by Substitution

p. 455

Fill in the diagram to complete the steps to solve a system of equations by substitution. Use the terms *variable, value, equation,* and *substitute* as often as needed.

Step 1

Choose one _____ and solve for one _____.

→

Step 2

_____ the expression from Step 1 into the other _____. Solve for the variable.

→

Step 3

Substitute the _____ for the variable found in Step 2 back into the first _____. Solve for the other variable.

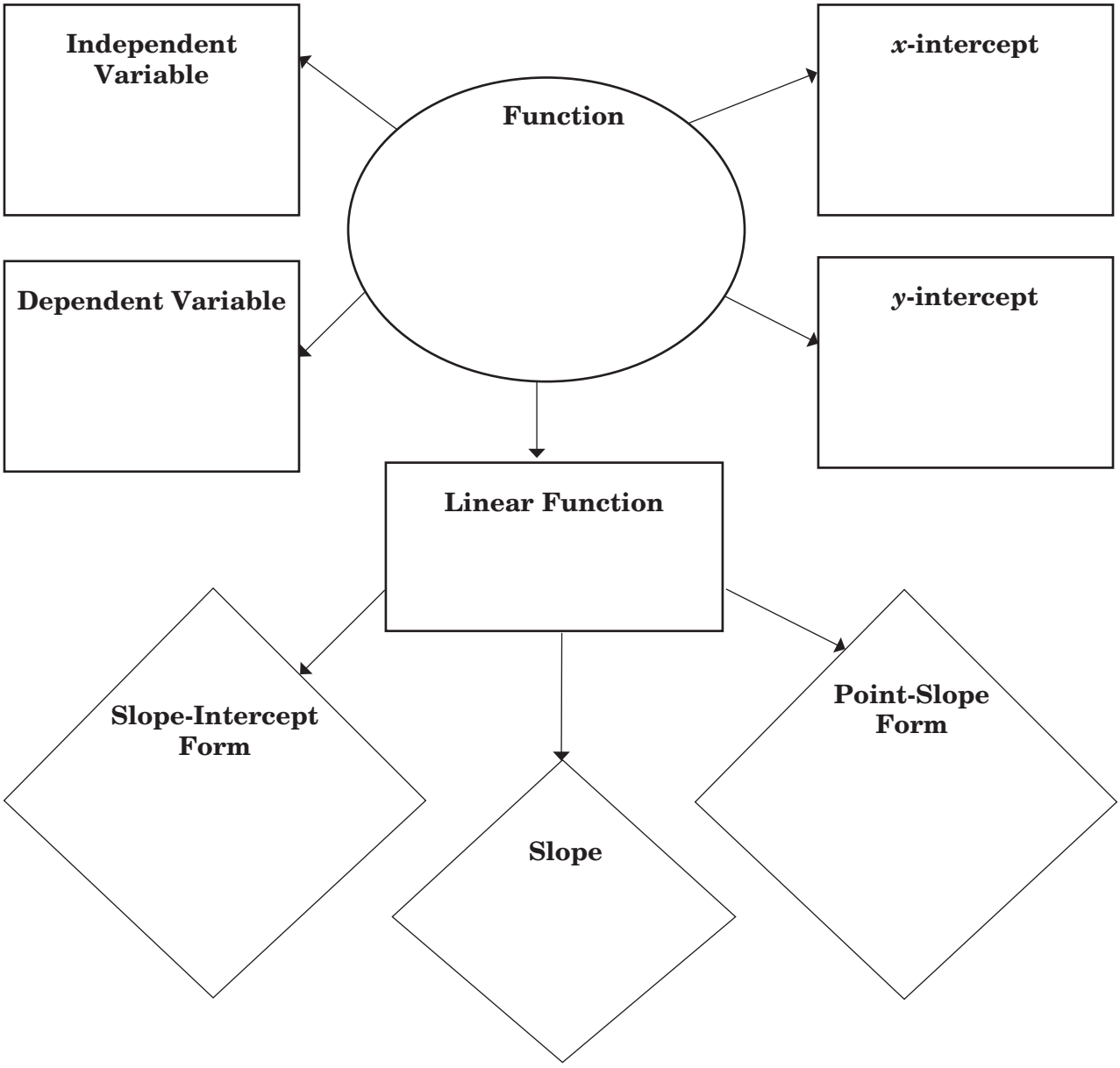
NAME _____ DATE _____ PERIOD _____

CHAPTER 8

Linear Functions and Graphing

Tie It Together

Complete the graphic organizer with definitions and concepts about each topic.



NAME _____ DATE _____ PERIOD _____

CHAPTER 8

Linear Functions and Graphing

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Linear Function and Graphing	After You Read
• In a function, a member of the domain can be paired with more than one member of the range.	
• An arithmetic sequence has a common ratio between each term.	
• A linear function has both straight and curved lines.	
• If a rate of change is proportional, its graph will be a straight line.	
• In the equation $y = 5x + 3$, the slope is 3.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 8.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 8 Study Guide and Review in the textbook.

☐ I took the Chapter 8 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

Study Tips

- Be an active listener in class. Take notes, circle or highlight information that your teacher stresses, and ask questions when ideas are unclear to you.

NAME _____ DATE _____ PERIOD _____

CHAPTER 9

Powers and Nonlinear Functions

Before You Read

Before you read the chapter, think about what you know about powers and nonlinear functions. List three things you already know about them in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

FOLDABLES® Study Organizer

Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, be sure to listen actively.**
  Always think before you write, but don't get behind in your note-taking. Remember to enter your notes legibly.
- **When you take notes, circle, underline, or star anything the teacher emphasizes.**
  When your teacher emphasizes a concept, it will usually appear on a test, so make an effort to include it in your notes.

NAME _____ DATE _____ PERIOD _____

CHAPTER 9

Powers and Nonlinear Functions

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on prime factorization, one fact might be that a monomial is a number, a variable, or a product of numbers and/or variables. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
9-1 Powers and Exponents	
9-2 Prime Factorization	
9-3 Multiplying and Dividing Monomials	
9-4 Negative Exponents	
9-5 Scientific Notation	
9-6 Powers of Monomials	
9-7 Linear and Nonlinear Functions	
9-8 Quadratic Functions	
9-9 Cubic and Exponential Functions	

NAME _____ DATE _____ PERIOD _____

9-1 Powers and Exponents

What You'll Learn

Skim Lesson 9-1. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to the term. *(Lesson 1-1)*

order of operations ▶ _____

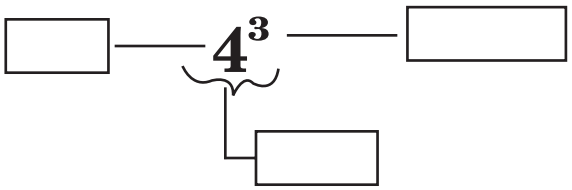
_____

New Vocabulary Label the diagram with the correct term.

exponent ▶

power ▶

base ▶



Vocabulary Link *Base* is a word that is used in everyday English. Find the definition of *base* using a dictionary. Explain how the English definition can help you remember how *base* is used in mathematics.

_____

_____

_____

Main Idea	Details

Use Exponents
pp. 471–472

Fill in the blank for each verbal expression with a numeric expression with exponents.

1. 8 to the seventh power _____

2. 3 cubed _____

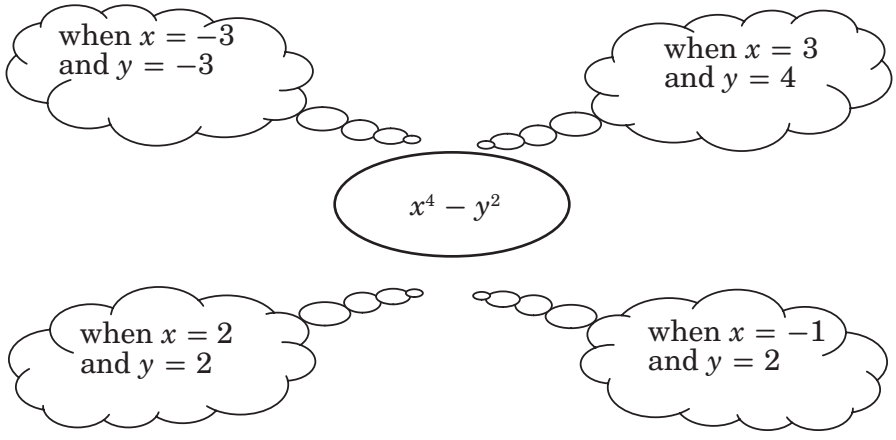
3. 6 to the fourth power _____

4. 4 to the first power _____

5. 7 squared _____

Evaluate Expressions
pp. 472–473

Complete the organizer to evaluate the expression with the values given for x and y.



Helping You Remember

A classmate states that $3^2 = 6$. How would you explain the correct solution? Use words, drawings, or models in your explanation.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

9-2 Prime Factorization

What You'll Learn

Scan Lesson 9-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with its definition by drawing a line to connect the two.

monomial	when a composite number is expressed as the product of prime factors
composite number	to write a number as a product of its factors
factor tree	a whole number with exactly two unique factors, 1 and itself
factor	an expression that is a number, a variable, or a product of numbers and variables
prime number	a way to find the prime factorization of a number
prime factorization	a whole number that has more than two factors

Vocabulary Link *Composite* is a word that is used in everyday English. Find the definition of *composite* using a dictionary. Explain how the English definition can help you remember how a *composite number* is used in mathematics.

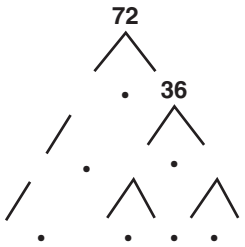
_____

_____

_____

Lesson 9-2

Main Idea	Details
Write Prime Factorization pp. 476–477	**Complete the factor tree.**



The prime factorization of 72 is _____.

Factor Monomials
pp. 477–478

Fill in each blank with the monomial whose factors are shown.

1. 2 3 3 x y y _____

2. –1 5 5 a a a _____

3. 3 7 11 s s s s s _____

4. –1 x x x _____

Helping You Remember

Explain the relationship between the terms *base, exponent,* and *power*.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

9-3 Multiplying and Dividing Monomials

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to the definition. (*Lessons 1-3 and 2-1*)

_____ ▶ a number greater than zero

_____ ▶ a number less than zero

_____ ▶ the whole numbers and their opposites

_____ ▶ The order numbers are multiplied does not change the product.

_____

_____ ▶ The order numbers are grouped does not change the sum.

_____

Finish each property.

Product of Powers Property

$$a \cdot a^n = a^m$$

Quotient of Powers Property

$$a^m \div a = a^{\quad n}$$

Lesson 9-3

Main Idea	Details

Multiply Monomials
pp. 481–482

Fill in the blanks to find each product.

1. $4^3 \quad 4^2 = 4^{\square+\square} = 4^{\square}$

2. $2^5 \quad 2^3 = 2^{\square+\square} = \square^{\square}$

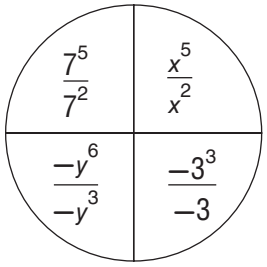
3. $5^3 \quad 5^4 = 5^{\square+\square} = \square^{\square}$

4. $2y^3 \quad -3y^3 = \square\,\square^{\square+\square} = \square\,\square^{\square}$

5. $5x^4 \quad 3x^3 = \square\,\square^{\square+\square} = \square\,\square^{\square}$

Divide Monomials
pp. 482–483

Cross out the one that does not belong. Then state the relationship among the three remaining parts of the circle.



The relationship is:

_____.

Helping You Remember

Restate the Product of Powers Property and the Quotient of Powers Property in your own words.

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

9-4 Negative Exponents

What You'll Learn

Skim Lesson 9-4. Predict two things you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definitions next to each term. *(Lessons 1-1, 1-2, 1-3 and 9-1)*

deductive reasoning ▶ _____

_____

exponent ▶ _____

_____

power ▶ _____

_____

base ▶ _____

_____

evaluate ▶ _____

_____

algebraic expression ▶ _____

_____

Main Idea	Details

Negative Exponents
pp. 486–487

Fill in each blank to prove $y^{-3} = \frac{1}{y^3}$.
Start with $\frac{y^4}{y^7}$.

$\frac{y^4}{y^7} \longrightarrow$ Using the _____,
the quotient is $\square^{\square - \square} = \square^{\square}$.

$\frac{y^4}{y^7} \longrightarrow$ By _____, the quotient is
$\frac{y \cdot y \cdot y \cdot y}{y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y} = \frac{\square}{\square}$.

Because $\frac{y^4}{y^7}$ is equal to both $\square^{\square}$ and $\frac{\square}{\square}$, $\square = \square$.

Evaluate Expressions
p. 488

Fill in the diagram to complete the steps to evaluate an expression with negative exponents. Use the terms *order of operations*, *positive*, *replace*, and *simplify*.

Step 1	Step 2	Step 3
_____ the value given for the variable.	Write the negative power as a _____ power.	Use the _____ _____ and _____.

Helping You Remember

Explain how negative exponents can be written as positive exponents.

_____

_____

NAME _____ DATE _____ PERIOD _____

9-5 Scientific Notation

What You'll Learn

Scan the text in Lesson 9-5. Write two facts you learned about scientific notation as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the following terms with the correct examples by drawing a line to connect the two.

standard form

scientific notation

0.000050

5.0×10^5

2.8×10^3

3,700

8,900,000,000

Vocabulary Link *Standard* is a word that is used in everyday English. Find the definition of *standard* using a dictionary. Explain how the English definition can help you remember how *standard form* is used in mathematics.

_____

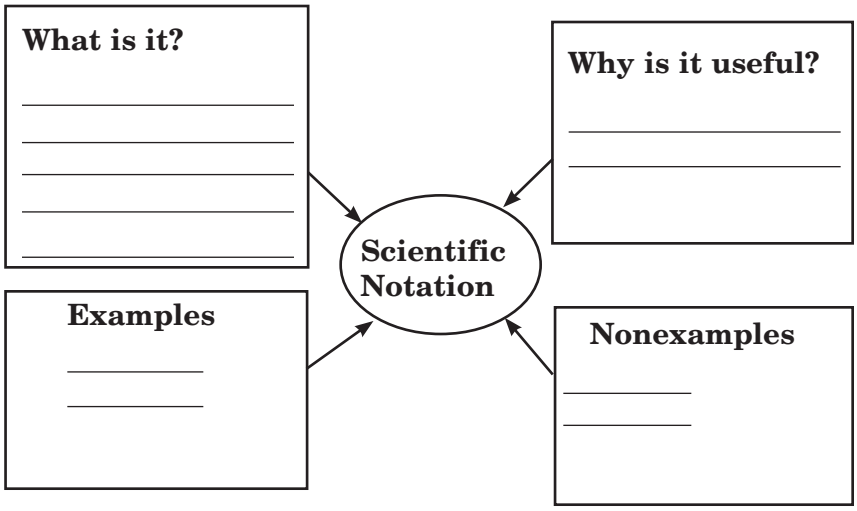
_____

_____

_____

_____

Main Idea	Details
Scientific Notation pp. 493–494	**Complete the organizer about *scientific notation*.**



Compare and Order Numbers
p. 495

Write the numbers in order from greatest to least.

1. 4.05×10^5, 4.2×10^5, 3.0×10^5 , 1.3×10^5

2. 2.4×10^{-3}, 2.0×10^{-2}, 3.1×10^3, 2.9×10^{-2}

Helping You Remember

Explain how to express a number greater than 1, a number less than 1, and then the number 1 in scientific notation.

NAME _____ DATE _____ PERIOD _____

9-6 Powers of Monomials

What You'll Learn

Skim the lesson. Write two things you already know about powers of monomials.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lessons 9-1 and 9-2)*

monomial ▶ an expression that is a number, a _____, or a _____ of numbers and or variables

power ▶ a _____ that is expressed using an _____

Vocabulary Link Write a *power* that has a *base* of 7 and an *exponent* of 4. Then write x to the fifth *power*. Write y *squared*. Write a monomial that is the product of the number 2 and k cubed.

_____

_____

Finish for each property.

Power of a Property

$$(a^m)^n = a^{m\_\_n}$$

Power of a Property

$$(ab)^m = a\_b\_$$

Main Idea	Details

Power of a Power
p. 499

Fill in the blanks with each product.

1. $(5^3)^2 = 5^{\square}$ $\square = 5^{\square}$

2. $(x^5)^4 = x^{\square}$ $\square = x^{\square}$

3. $(6^2)^{-2} = 6^{\square}$ $\square = 6^{\square}$ or $\frac{\square}{\square}$

4. $(y^{-3})^{-4} = y^{\square}$ $\square = y^{\square}$

Power of a Product
pp. 500–501

Compare the two properties of powers by filling out the chart.

	Power of Powers	Power of a Product
Why?		
How?		
Example		

Helping You Remember

Compare and contrast the Quotient of Powers Property and the Product of Powers Property.

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

9-7 Linear and Nonlinear Function

What You'll Learn

Skim the Examples for Lesson 9-7. Predict two things you think you will learn about linear and nonlinear function.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lesson 1-5)*

function ▶ _____

_____

function rule ▶ _____

_____

function table ▶ _____

_____

New Vocabulary Fill in each blank with the correct term or phrase.

nonlinear functions ▶ functions that _____ have constant _____, therefore their graphs are *not* _____

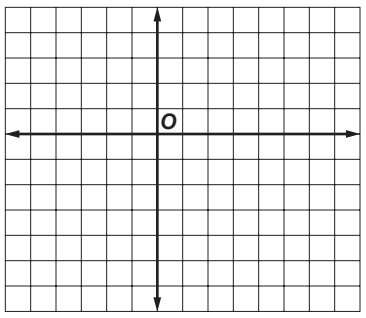
Lesson 9-7

Main Idea	Details

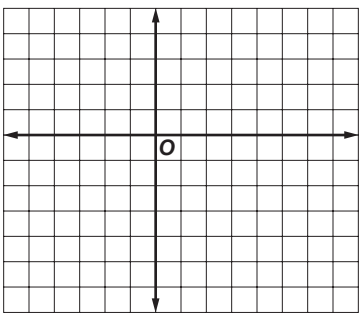
Graphs of Nonlinear Functions
p. 504

Model a *linear* and *nonlinear* function on the coordinate planes. On the lines below, write a real-life example of each kind of function.

Linear Function



Nonlinear Function



_____

_____

_____

_____

_____

Equations and Tables
pp. 505–506

Complete the organizer to summarize three ways to determine if a function is *linear or nonlinear*.

Is the graph a straight line?
- **Yes** → _____
- **No** → _____

Can the equation of the line be written in the form $y = mx + b$?
- **Yes** → _____
- **No** → _____

In a function table, are the changes in x and y constant?
- **Yes** → _____
- **No** → _____

NAME _____ DATE _____ PERIOD _____

9-8 Quadratic Functions

What You'll Learn

Scan Lesson 9-8. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

parabola ▶ _____

_____

quadratic function ▶ _____

_____

Vocabulary Link A *parabola* is the shape that is seen in everyday life. Give an example of something that has a parabola shape in real life.

_____

_____

_____

Lesson 9-8

Main Idea	Details

Graph Quadratic Function
pp. 510–511

Complete the organizer by filling in the blanks. Then complete the example.

Graph a Quadratic Function

Step 1:
Make a _____.

Step 2:
____the ordered pairs.

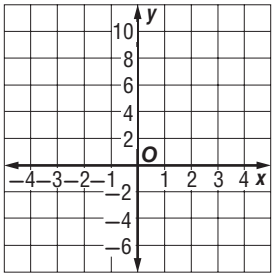
Step 3:
_____the points with a curved _____.

Graph: $y = 2x^2 + 3$

Step 1:

x	$y = 2x^2 + 3$	y

Step 2 and Step 3:



Use Quadratic Function
p. 511

Fill in the blanks by using the information below.

A ball is thrown into the sky. The equation that gives the ball's height in meters h as a function of time t is $h = -4.9t^2 + 12t + 3$.

1. What is the height of the ball after $t = 1$ second?
_____

2. How high is the ball after 2 seconds? _____

3. What can you say about the ball's path between 1 and 2 seconds? _____
_____.

NAME _____ DATE _____ PERIOD _____

9-9 Cubic and Exponential Functions

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. (*Lesson 9-8*)

quadratic function ▶ a function that can be written in the form _____, where $a \neq 0$

parabola ▶ the graph of a _____ function graph

New Vocabulary Match the term with the correct form by drawing a line to connect the two.

cubic function $y = a^x + c$, where $a \neq 0$, $a \neq 1$

exponential function $y = ax^3 + bx^2 + cx + d$, where $a \neq 0$

Vocabulary Link *Exponential* is a word that is used in everyday English. Find the definition of *exponential* using a dictionary. Explain how the English definition can help you remember the shape of the graph of an *exponential function* in mathematics.

_____

_____

_____

Main Idea	Details

Cubic Functions
pp. 516–517

Fill in the organizer for *cubic functions*. are given.

What is a cubic function?	Sketch the shape of a graph of a cubic function.
Cubic Functions	
Examples of Cubic Functions	**Nonexamples of Cubic Functions**

Exponential Functions
pp. 517–518

Fill in each blank with the value of *y*.

1. $y = 2^x - 1$, when $x = 3$: (3, ____)

2. $y = 4^x + 2$, when $x = -1$: (−1, ____)

3. $y = 2^x - 3$, when $x = 2$: (2, ____)

4. $y = 5^x$, when $x = -2$: (−2, ____)

Helping You Remember

You have learned to graph quadratic and cubic functions. Make a list of the steps you use to graph the two functions.

_____

_____

NAME _____ DATE _____ PERIOD _____

CHAPTER 9

Powers and Nonlinear Functions

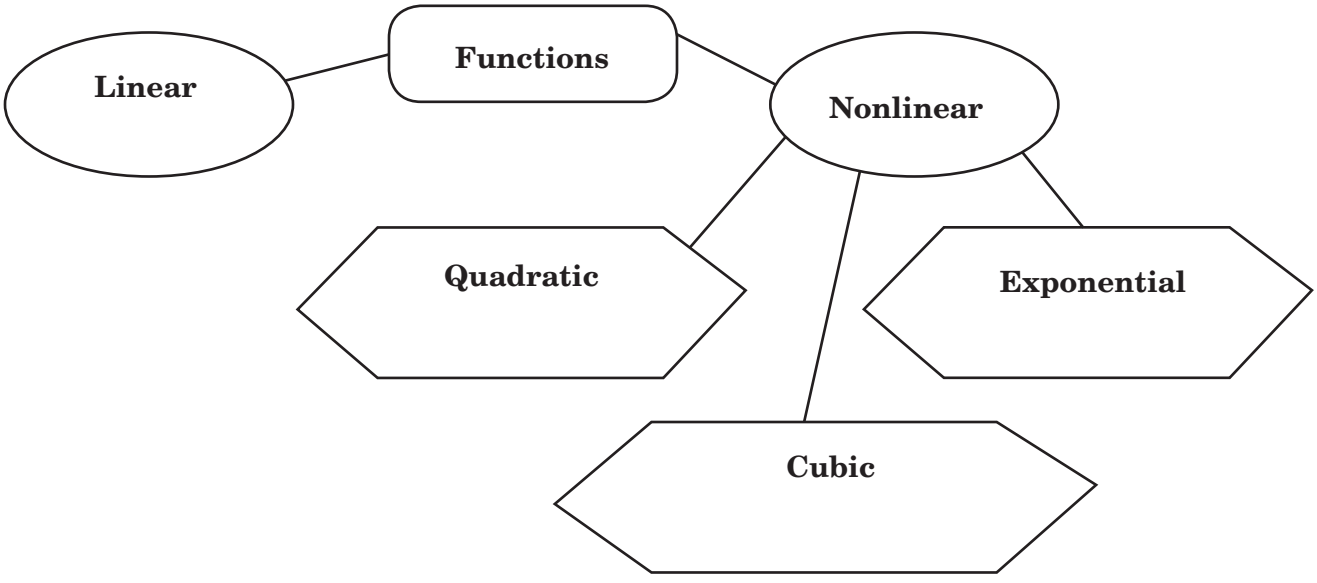
Tie It Together

Complete the graphic organizer by writing an equivalent form of the exponential expression.

_____ → x^a ← _____

$x^m \cdot x^n$	
$\frac{x^m}{x^n}$	
$(x^m)^n$	
$(xy)^m$	
x^{-m}	
x^0, when $\neq 0$	

Complete the graphic organizer with types of functions and their general equations.



NAME _____ DATE _____ PERIOD _____

CHAPTER 9

Powers and Nonlinear Functions

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 9.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 9 Study Guide and Review in the textbook.

☐ I took the Chapter 9 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Complete reading assignments before class. Write down or circle any questions you may have about what was in the text.

NAME _____ DATE _____ PERIOD _____

CHAPTER 10

Real Numbers and Right Triangles

Before You Read

Before you read the chapter, think about what you know about real numbers and right triangles. List three things you already know about them in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **Before going to class, look over your notes from the previous class, especially if the day's topic builds from the last one.**
- **When you take notes, write down the math problem and each step in the solution using math symbols.**

  Next to each step, write down, in your own words, exactly what you are doing.

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CHAPTER 10

Real Numbers and Right Triangles

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on triangles, one fact might be that a vertex is a point where line segments intersect. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
10-1 Squares and Square Roots	
10-2 The Real Number System	
10-3 Triangles	
10-4 The Pythagorean Theorem	
10-5 The Distance Formula	
10-6 Special Right Triangles	

NAME _____ DATE _____ PERIOD _____

10-1 Squares and Square Roots

What You'll Learn

Scan the text in Lesson 10-1. Write two facts you learned about squares and square roots as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match the term with its definition by drawing a line to connect the two.

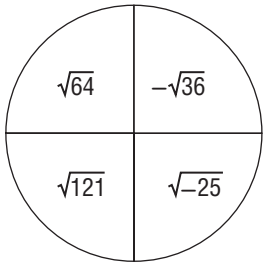
perfect square	one of a number's two equal factors
square root	indicates a positive square root
radical sign	a rational number whose square root is a whole number

Main Idea

Find Square Roots
p. 537

Details

Cross out the square root in the concept circle that does not belong. Then describe the relationship of the remaining three parts.



The relationship is _____

_____.

Main Idea	Details

Estimate Square Roots
pp. 538–539

Complete the organizer by following the steps to estimate a square root. Then complete the example.

Estimate a square root.

Step 1: Find the perfect square just below the number.

Step 2: Find the perfect square just above the number.

Step 3: Decide which is closest.

Estimate $-\sqrt{24}$ to the nearest integer.

Step 1:

Step 2:

Step 3:

Helping You Remember

Tell whether each number has a square root and explain why or why not. Then state if it is a perfect square and explain.

	Real Square Root?	Perfect Square?
26		
–81		
256		
2500		
–5		

NAME _____ DATE _____ PERIOD _____

10-2 The Real Number System

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about the real number system.

1. _____

_____

2. _____

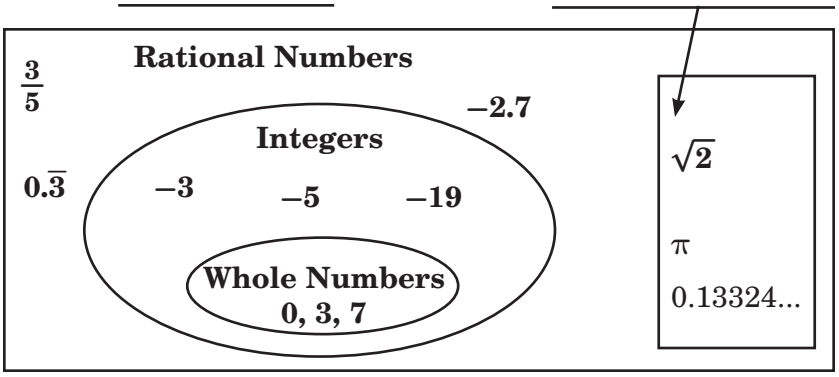
_____

Active Vocabulary

New Vocabulary Label the diagram with the correct term.

irrational numbers ▶

real numbers ▶



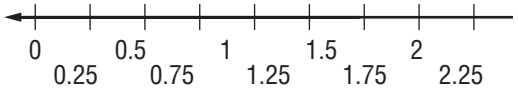
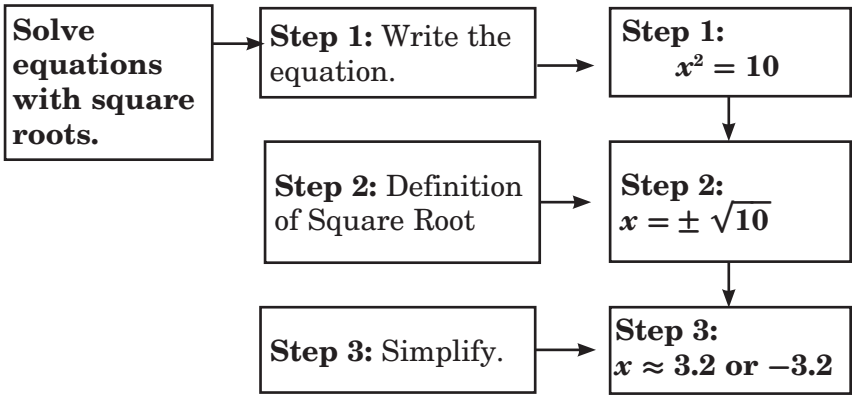
Vocabulary Link *Irrational* is a word that is used in everyday English. Find the definition of *irrational* using a dictionary. Explain how the English definition can help you remember how *irrational* is used in mathematics.

_____

_____

_____

Lesson 10-2

Main Idea	Details
Identify and Compare Real Nmbers pp. 543–544	**Model and explain how to use a number line to list $\frac{7}{8}$, $0.\overline{67}$, $\sqrt{3}$, and $\frac{3}{4}$ from least to greatest. Write an equality and explanation on the lines below.**  _____ _____ _____ _____
Solve Equations p. 545	**Complete the organizer by following the steps to solve the equation $x^2 = 10$ using the definition of a square root.** 

NAME _____ DATE _____ PERIOD _____

10-3 Triangles

What You'll Learn

Skim Lesson 10-3. Predict two things that you expect to learn based on the headings and the Key Concept boxes.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

congruent ▶ _____

triangle ▶ _____

_____

vertex ▶ _____

_____

line segment ▶ _____

_____

Main Idea

Find Angle Measures
pp. 550–551

Details

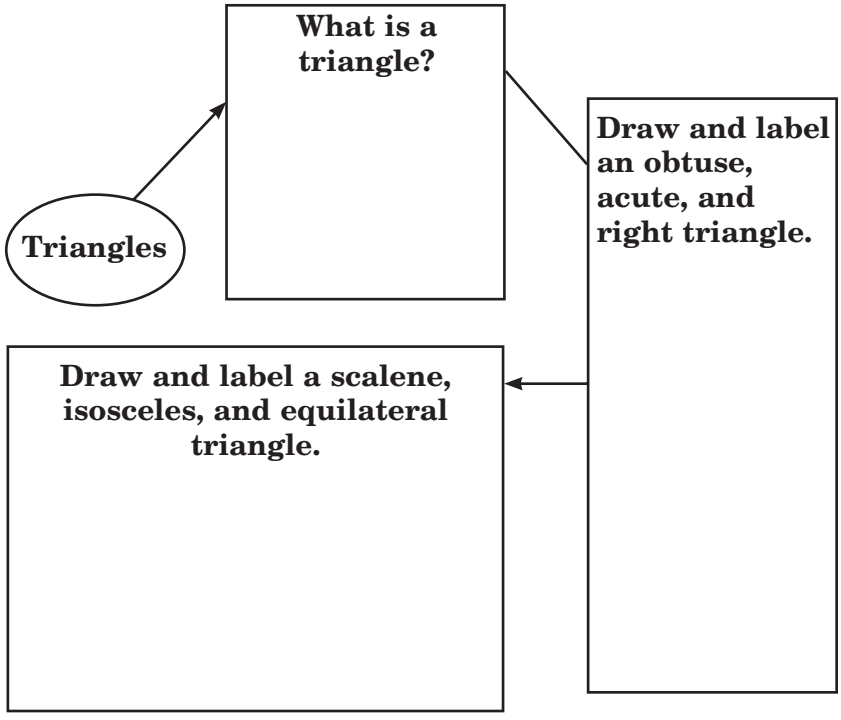
Fill in the diagram to determine the angle measures of $\triangle KLM$ with a ratio of 1:3:1.

Step 1		Step 2		Step 3
Use x to represent the measure of the _____ and _____ _____.	→	Use _____ to represent the measure of the _____.	→	Write the equation, _____ _____. Solve for x.

Because x = _____, the measure of the angles are _____ _____.

Lesson 10-3

Main Idea	Details
Classify Triangles pp. 551–552	**Summarize information about triangles in the graphic organizer. Sample answers are given.**



Helping You Remember

Describe an obtuse, scalene triangle.

_____

_____

Describe an equilateral triangle. _____

_____

NAME _____ DATE _____ PERIOD _____

10-4 The Pythagorean Theorem

What You'll Learn

Skim the Examples in Lesson 10-4. Predict two things you think you will learn about the Pythagorean Theorem.

1. _____

_____

2. _____

_____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

hypotenuse ▶ _____

_____

Pythagorean Theorem ▶ _____

_____

_____

legs ▶ _____

solving a right triangle ▶ _____

_____

_____

converse of the Pythagorean Theorem ▶ _____

_____

Main Idea	Details

Use the Pythagorean Theorem

pp. 558–559

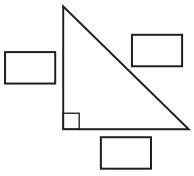
Fill in the organizer about using the *Pythagorean Theorem*.

Definition

Symbols

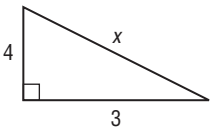
_____

Label a, b, c.

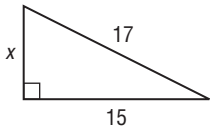


Pythagorean Theorem

Find the length of the hypotenuse.



Find the missing length.



Use the Converse of the Pythagorean Theorem

p. 600

Fill in the blanks and determine whether each triangle is a right triangle.

1. 12 in., 35 in., 37 in.

$a^2 + b^2 = c^2$

$\square + \square \stackrel{?}{=} \square$

$\square + \square \stackrel{?}{=} \square$

$\square = \square$

Is it a right triangle?

2. 7 cm, 23 cm, 24 cm

$a^2 + b^2 = c^2$

$\square + \square \stackrel{?}{=} \square$

$\square + \square \stackrel{?}{=} \square$

$\square \neq \square$

Is it a right triangle?

NAME _____ DATE _____ PERIOD _____

10-5 The Distance Formula

What You'll Learn

Skim the lesson. Predict two things that you expect to learn based on the headings and the Key Concept boxes.

1. _____

_____

2. _____

_____

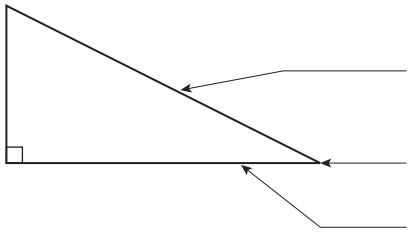
Active Vocabulary

Review Vocabulary Label the diagram with the correct term. *(Lessons 10-3 and 10-4)*

hypotenuse ▶

leg ▶

vertex ▶



New Vocabulary Fill in each blank with the correct term or phrase.

distance formula ▶ The distance d between _____ with coordinates _____ and _____ is given by the formula

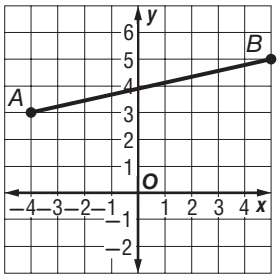
$d =$ _____

Main Idea	Details

Find the Distance Between Points
pp. 565–566

Model the solution to find the distance between the points on the coordinate plane. Use the lines to show your calculations. Round to the nearest tenth if necessary.

$(x_1, y_1) = (-4, 3)$; $(x_2, y_2) = (5, 5)$



AB

_____

_____

_____

_____

Apply the Distance Formula
p. 567

Fill in each blank to describe the steps to classify a triangle by its sides on a coordinate plane and then find its perimeter.

Step 1	Step 2	Step 3
Use the distance formula, to find the _____ of each side.	_____ the triangle as scalene, equilateral, or isosceles using the _____.	Find the _____ of the triangle's _____ to find the _____.

Helping You Remember

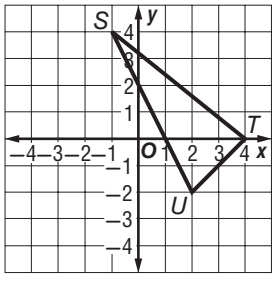
Describe how you would find the perimeter of $\triangle STU$. List any formulas that must be used.

_____

_____

_____

_____



NAME _____ DATE _____ PERIOD _____

10-6 Special Right Triangles

What You'll Learn

Scan Lesson 10-6. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. *(Lessons 6-7, 10-1, 10-3, and 10-4)*

_____ ▶ formed by three line segments that intersect only at their endpoints

_____ ▶ the point where two line segments that form a side of a triangle meet

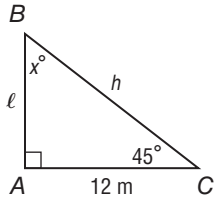
_____ ▶ figures that have the same shape but not necessarily the same size

Main Idea

Find Measures in 45 –45 –90 Triangles
pp. 571–572

Details

Use $\triangle ABC$ to fill in each blank.



1. The measure of $\angle B$ is _____ because _____

_____.

2. The length of the hypotenuse, h, is _____ because

_____

_____.

3. The length of side, l, is 12 meters because _____

_____.

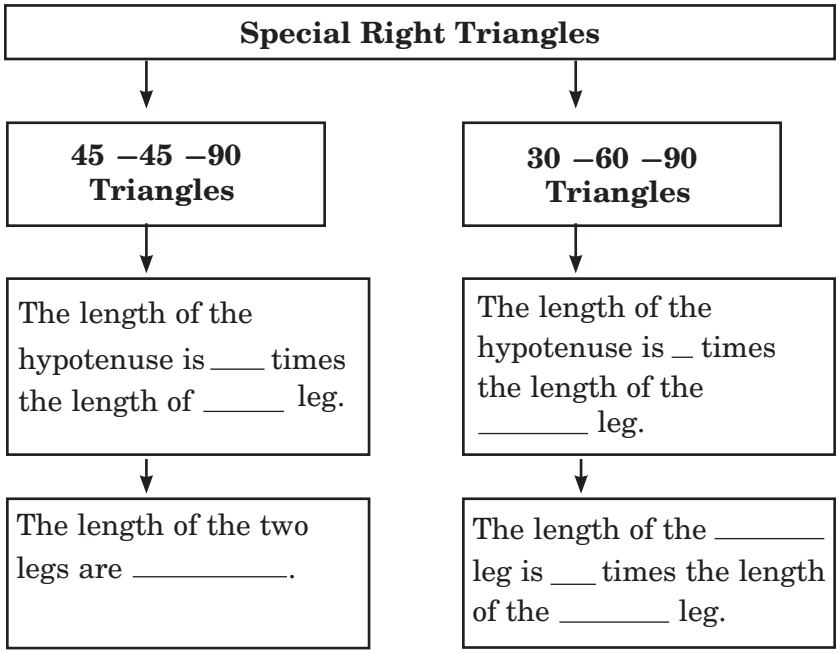
Main Idea

Find Measures in 30 –60 –90 Triangles

pp. 572–573

Details

Compare 45 –45 90 and 30 60 90 triangles by filling in each blank of the organizer.



Helping You Remember

Describe the properties of a 30° 60°–90° triangle. Include the ways that students sometimes mismeasure the side lengths or angles.

_____

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

CHAPTER 10

Real Numbers and Right Triangles

Tie It Together

Sketch an example of each type of triangle if possible. If the sketch is not possible mark an X in the box.

Angle Measure/ Side Length	Acute	Obtuse	Right
Equilateral			
Isosceles			
Scalene			

NAME _____ DATE _____ PERIOD _____

CHAPTER 10

Real Numbers and Right Triangles

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 10.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 10 Study Guide and Review in the textbook.

☐ I took the Chapter 10 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Use abbreviations while note-taking to use less time and room. Write neatly and place a question mark by any information that you do not understand.

NAME _____ DATE _____ PERIOD _____

CHAPTER 11 Distance and Angle

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Distance and Angle
	• Parallel lines intersect to form right angles.
	• A figure that rotates about a fixed point does not change shape or size.
	• A quadrilateral is a polygon that has four sides.
	• An example of a polygon is a circle.
	• The formula to find the circumference of a circle is $C = 2\pi r$.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **It is helpful to read through your notes before beginning your homework.** Look over any page referenced material.
- **As soon as possible, go over your notes.** Clarify any ideas that were not complete.

NAME _____ DATE _____ PERIOD _____

CHAPTER 11

Distance and Angle

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on quadrilaterals, one fact might be that the sum of the measures of the angles of a quadrilateral is 360°. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
11-1 Angle and Line Relationships	
11-2 Congruent Triangles	
11-3 Rotations	
11-4 Quadrilaterals	
11-5 Polygons	
11-6 Area of Parallelograms, Triangles, and Trapezoids	
11-7 Circles and Circumference	
11-8 Area of Circles	
11-9 Area of Composite Figures	

NAME _____ DATE _____ PERIOD _____

11-1 Angle and Line Relationships

What You'll Learn

Skim Lesson 11-1. Predict two things that you expect to learn based on the headings and the Key Concept boxes.

1. _____

2. _____

Active Vocabulary

New Vocabulary Write the definition next to each term.

vertical angles ▶ _____

adjacent angles ▶ _____

complementary angles ▶ _____

supplementary angles ▶ _____

perpendicular lines ▶ _____

parallel lines ▶ _____

transversal ▶ _____

alternative interior angles ▶ _____

alternative exterior angles ▶ _____

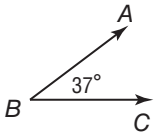
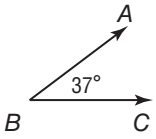
corresponding angles ▶ _____

Lesson 11-1

Main Idea	Details

Angle Relationships
pp. 589–590

Complete the model so that $\angle ABC$ is complementary to $\angle ABD$ and $\angle ABC$ is supplementary to $\angle ABD$. Label each angle measure.

Complementary Angles	Supplementary Angles
	

Parallel Lines
pp. 590–591

Draw a transversal t which intersects with two parallel lines a and b. Label all interior angles, exterior angles, alternative interior and exterior angles, and corresponding angles.

Helping You Remember

Look up the meaning of the prefix *trans-* in the dictionary. Write down four words that have *trans-* as a prefix. How can the meaning of the prefix help you remember the meaning of transversal?

_____

_____

NAME _____ DATE _____ PERIOD _____

11-2 Congruent Triangles

What You'll Learn

Scan Lesson 11-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the correct term next to each definition. (*Lesson 10-3*)

_____ ▶ formed by three line segments that intersect only at their endpoints

_____ ▶ the point where two line segments that form a side of a triangle meet

_____ ▶ the part of a line containing two endpoints and all of the points between them

New Vocabulary Fill in each blank with the correct term or phrase.

congruent ▶ _____ that have the same _____ and _____ are congruent.

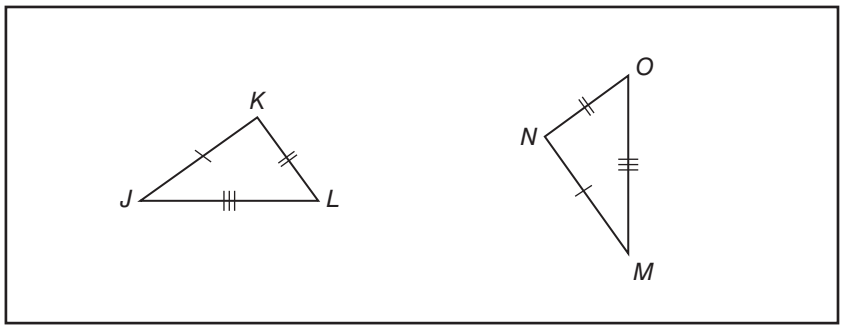
corresponding parts ▶ The _____ of _____ triangles that _____ or correspond are called corresponding parts.

Lesson 11-2

Main Idea	Details

Corresponding Parts
pp. 598–600

Fill in each blank to complete the congruence statements for the congruent triangles below.



1. $\triangle JKL \cong \triangle$ ____
2. $\triangle$ ____ $\cong \triangle NOM$
3. $\triangle JLK \cong \triangle$ ____
4. $\triangle KJL \cong \triangle$ ____
5. $\triangle$ ____ $\cong \triangle OMN$
6. $\triangle LKJ \cong \triangle$ ____

Identify Congruent Triangles
pp. 600–601

Fill in the diagram to complete the steps to determine congruent triangles. Use the terms *statement*, *order*, *angles*, *vertices*, and *sides*.

Step 1	→	Step 2	→	Step 3
Name the corresponding _____.		Name the corresponding _____.		Write a congruency _____ so the corresponding _____ are in the same _____.

Helping You Remember

Corresponding is a word used in everyday English as well as in mathematics. Write the definition of *corresponding*. Explain how the English definition can help you remember how *corresponding* is used in mathematics.

_____

_____

NAME _____ DATE _____ PERIOD _____

11-3 Rotations

What You'll Learn

Skim the Examples for Lesson 11-3. Predict two things that you will learn about rotations.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Match each definition with the correct term by drawing a line to connect the two.

rotation	the fixed point that a figure is rotated about
center of rotation	when a figure can be rotated less than 360° about its center so that its image matches the original figure
rotational symmetry	a transformation where a figure is turned about a fixed point

Vocabulary Link *Rotational* and *symmetry* are two words used in everyday English. Find the definitions of *rotational* and *symmetry* using a dictionary. List three examples of something that has rotational symmetry.

_____

_____

_____

Lesson 11-3

Main Idea	Details
Rotations pp. 605–607	**Draw the letter after a 90° counterclockwise rotation around the point.** 
Rotational Symmetry p. 607	**Fill in the organizer about rotational symmetry.**

How do you decide if a figure has rotational symmetry?

How do you find the angle of rotation?

Rotational Symmetry

Draw a figure with a 90° angle of rotation.

Draw a figure with no rotational symmetry.

Helping You Remember

A classmate was absent the day that rotation and rotational symmetry were taught. Provide an explanation of the two concepts.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

11-4 Quadrilaterals

What You'll Learn

Skim the lesson. Write two things you already know about quadrilaterals.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lesson 10-3)*

vertex ▶ _____

_____

segment ▶ _____

_____

New Vocabulary Fill in each blank with the correct term or phrase.

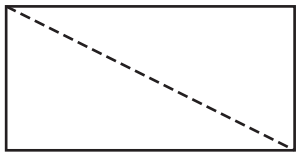
quadrilateral ▶ A quadrilateral is a _____ figure with _____ sides and _____ angles. The segments that form a quadrilateral _____ only at their _____.

Vocabulary Link *Quad-* is a prefix used in everyday English as well as in mathematics. Write the meaning of the prefix *quad-*. Write two examples of words used in everyday life that have *quad-* as a prefix and their meanings.

_____

_____

_____

Main Idea	Details
Find Angle Measures pp. 612–613	**Explain how the model proves that a quadrilateral has angles whose measures have a sum of 360º.**  _____ _____ _____
Classify Quadrilaterals p. 613	**Fill in the organizer to classify and describe each figure. Then draw lines to connect the figures and show their relationships.** A _____ is a closed figure with 4 _____. A _____ has both pairs of opposite sides _____ and _____. A _____ has exactly ____ pair of parallel sides. A _____ is a _____ with 4 _____ angles. A _____ is a _____ with 4 congruent _____. A _____ is a _____ with 4 _____ sides and angles.

NAME _____ DATE _____ PERIOD _____

11-5 Polygons

What You'll Learn

Scan the text in Lesson 11-5. Write two facts you learned about polygons.

1. _____

_____

2. _____

_____

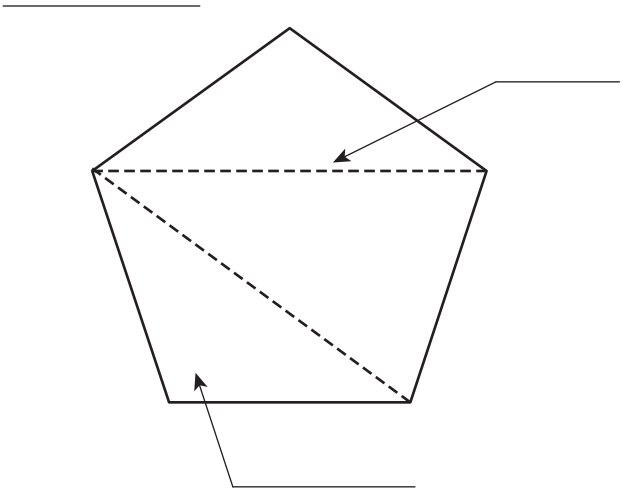
Active Vocabulary

New Vocabulary Label the diagram with the correct terms.

diagonal ▶

interior angles ▶

regular polygon ▶



Vocabulary Link *Tessellation* can be illustrated by real-world examples. Look around the room. Give two examples of real-world tessellations.

_____

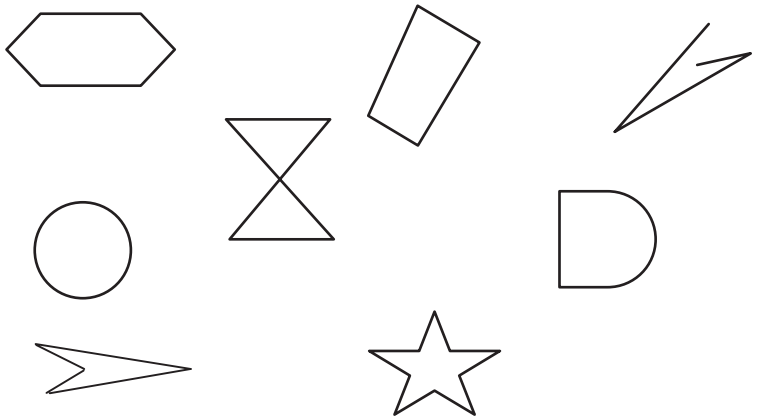
_____

_____

Main Idea	Details

Classify Polygons
p. 617

Circle the figures that are *not* polygons. If a figure is not a polygon, write the reason inside or beside the figure.



Find Angle Measures of a Polygon
pp. 618–619

Fill in each blank with the number of interior angles for each figure. Then write the sum of the measures of the interior angles.

1. heptagon

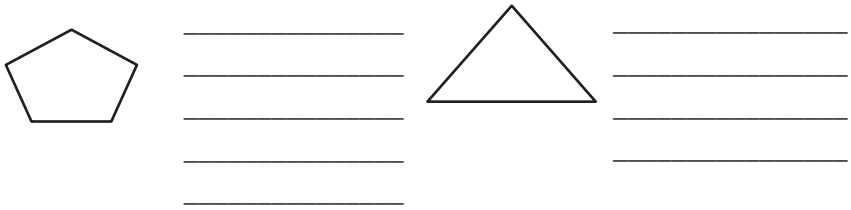
A heptagon is a __-sided figure.
So, $(n - 2)180 = (\_\_ - 2)180$
$n =$ _____. The sum is _____.

2. rhombus

A rhombus is a 4-sided figure.
So, $(n - 2)180 = (\_\_ - 2)180$
$n =$ _____. The sum is _____.

Tessellations
p. 619

Cross out the figure that can not be used to make a tessellation. Explain.



NAME _____ DATE _____ PERIOD _____

11-6 Area: Parallelograms, Triangles, and Trapezoids

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

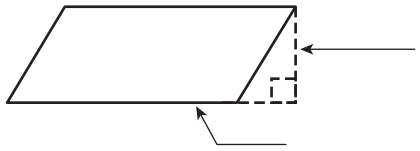
_____

Active Vocabulary

New Vocabulary Label the diagram with the correct terms.

base ▶

altitude ▶



Vocabulary Link *Altitude* is a word that is used in everyday English. Find the definition of *altitude* using a dictionary. Explain how the English definition can help you remember how *altitude* is used in mathematics.

_____

_____

_____

_____

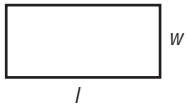
_____

_____

Main Idea	Details

Area of Parallelograms
p. 624

Compare the area of a rectangle and the area of a parallelogram.

Area		
	Rectangle	**Parallelogram**
Formula	$A = lw$	$A =$ _____
Words	Area is length times width.	Area is _____ times _____.
Model		
Examples	A rectangle with length 6 cm and width 5 cm has an area of _____.	A parallelogram with base 10 mm and height 9 mm has an area of _____.

Area of Triangles and Trapezoids
pp. 625–626

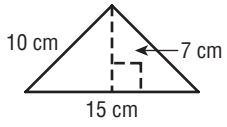
Complete to summarize the area of a triangle and a trapezoid.

A parallelogram divided in half by a diagonal results in two congruent triangles. The area of a parallelogram is the sum of the area of the two _____. Because the area of a parallelogram is _____ times _____, the area of a triangle is half the _____ times _____ or _____.

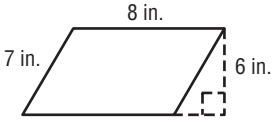
A trapezoid with base a and base b can be divided in half by a _____ resulting in two noncongruent triangles. The sum of the area of those two triangles is $\frac{1}{2}ah + \frac{1}{2}bh$ which is equal to ___(___ + ___).

Helping You Remember

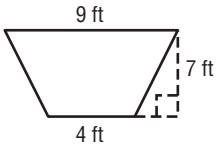
Match the formula with the correct figure by drawing a line to connect them. Then find its area.



$A = \frac{1}{2}h(a + b)$



$A = \frac{1}{2}(bh)$



$A = bh$

NAME _____ DATE _____ PERIOD _____

11-7 Circles and Circumference

What You'll Learn

Skim Lesson 11-7. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Fill in each blank with the correct term or phrase.

circle ▶ the set of all _____ in a plane that is the same _____ from a given _____ in the plane

center ▶ the given _____ in the middle of a _____

radius ▶ the _____ from the _____ to any point on the circle

diameter ▶ the _____ across the circle through the _____

chord ▶ the _____ between any two _____ on the circle

circumference ▶ the distance _____ the circle

π (pi) ▶ the _____ of the _____ to the _____ of a circle

Lesson 11-7

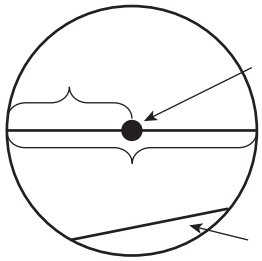
Main Idea	Details

Circumference of Circles
pp. 631–632

Label each part of the circle. Then find its circumference with the given diameter or radius. Round to the nearest tenth.

1. $r = 15$ mm Use $C = 2\pi r$.
$C = 2\pi($_____$)$
$C =$ _____π
$C \approx$ _____ mm

2. $d = 8$ yd Use $C = \pi d$.
$C = \pi($_____$)$
$C \approx$ _____ yd



Use Circumference to Solve Problems
p. 632

Fill in the blanks to complete the organizer. Round to the nearest tenth.

$C = \pi d$
$C = 2\pi r$

Find r when $C = 12$ feet.

$C = \pi d$
$= 2\pi r$
$12 = 2\pi r$

_____ $\approx r$

_____ $\approx r$

_____ $\approx r$

Find C when $r = 6$ meters.

$C = \pi d =$
$2\pi r$

$C = 2\pi($_____$)$

$C \approx$ _____m

Find d when $C = 22$ inches.

$C = \pi d$
$22 = \pi d$

_____ $\approx d$

_____ $\approx d$

NAME _____ DATE _____ PERIOD _____

11-8 Area of Circles

What You'll Learn

Scan Lesson 11-8. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

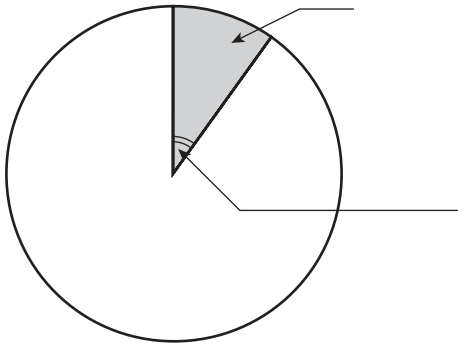
_____

Active Vocabulary

New Vocabulary Label the diagram with the correct term or phrase.

sector ▶

central angle ▶



Vocabulary Link *Sector* is a word that is used in everyday English. Find the definition of *sector* using a dictionary. Explain how the English definition can help you remember how *sector* is used in mathematics.

_____

_____

_____

_____

_____

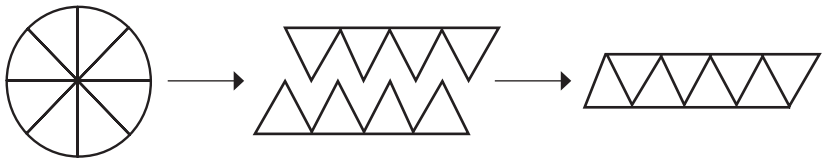
_____

Lesson 11-8

Main Idea	Details

Area of Circles
pp. 636–637

Fill in each blank to summarize the formula for the area of a circle.

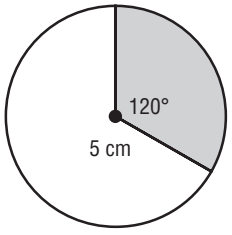


Divide a circle into equal _____.	→	Fit the pieces together to make a _____.

1. The area of a parallelogram is _____.
2. The circumference of a circle is _____.
3. The base of the parallelogram is _____ the circumference of the circle.
   So, $b = \frac{1}{2}C = \frac{1}{2}$(_____) = _____.
4. The height of the parallelogram is the _____ of the circle.
   So, h = _____.
5. Substitute the values for b and h.
   $A = bh$ = _____ = _____

Area of Sectors
p. 638

Fill in each blank to find the area of a sector.



$A = \frac{N}{360}(\pi r^2)$	Use the formula.
$= \frac{\square}{360}(\pi \square^2)$	N is the number of degrees of the central angle.
= _____ π	Substitute for N and r.
= _____ π	
$\approx$ _____	Simplify.

NAME _____ DATE _____ PERIOD _____

11-9 Area of Composite Figures

What You'll Learn

Skim the Examples for Lesson 11-9. Predict two things that you will learn about the area of composite figures.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lesson 11-7)*

circle ▶ _____

_____

radius ▶ _____

diameter ▶ _____

chord ▶ _____

circumference ▶ _____

π(pi) ▶ _____

_____

New Vocabulary Fill in the blank with the correct term or phrase.

composite figure ▶ A composite figure is made up of _____.

Main Idea

Area of Composite Figures

pp. 644–645

Details

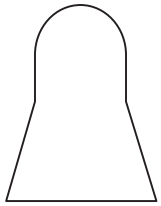
Fill in each blank to find the area of the composite figure.

Step 1:	→	**Step 2:**	→	**Step 3:**
Divide the figure into _____ that help you find the area.		Calculate the _____ of each _____.		The _____ of the _____ of the _____ is the area of the _____ figure.

Name the shapes that make up each composite figure. Then draw lines that show the shapes.

1.

2.



_____ _____

_____

Helping You Remember

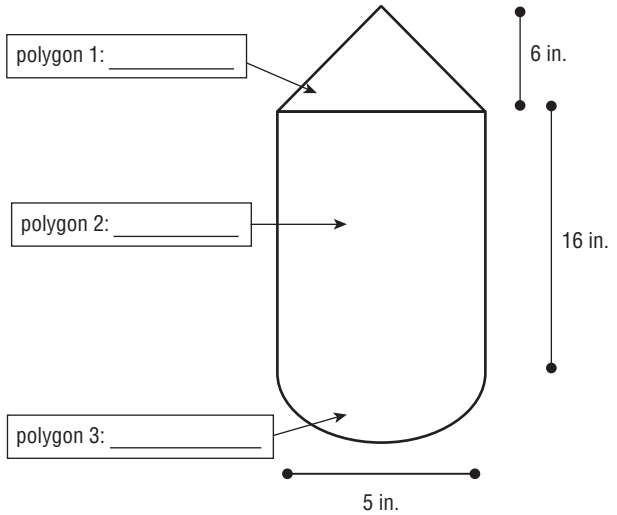
Find the area of each polygon and then the area of the composite figure.

Polygon 1: _____

Polygon 2: _____

Polygon 3: _____

Composite Figure: _____



NAME _____ DATE _____ PERIOD _____

CHAPTER 11

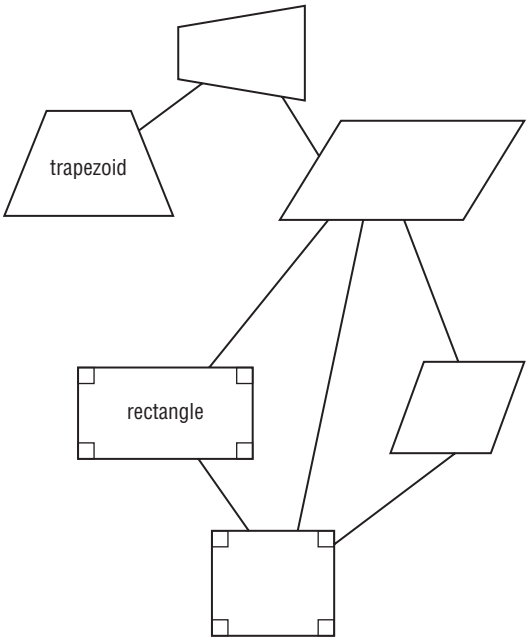
Distance and Angle

Tie It Together

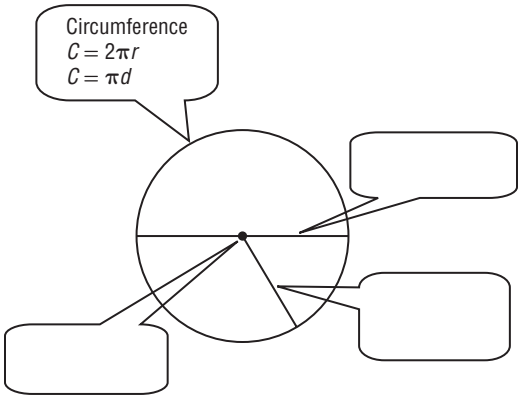
Complete each graphic organizer with a term or formula from the chapter.

Two-Dimensional Figures

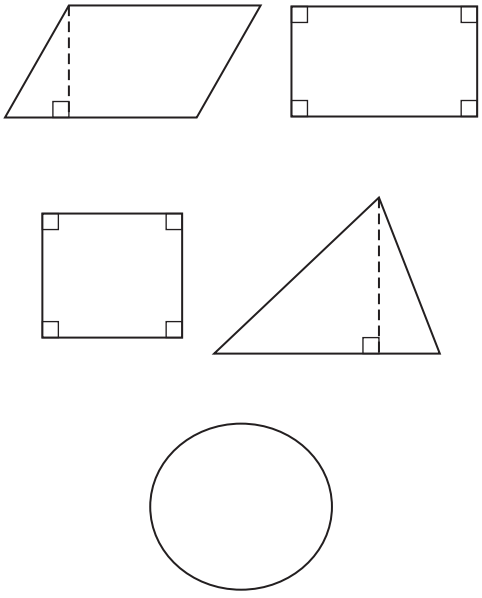
QUADRILATERALS



CIRCLES



AREA FORMULAS



NAME _____ DATE _____ PERIOD _____

CHAPTER 11 Distance and Angle

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.

2. Write a **D** if you disagree with the statement.

Distance and Angles	After You Read
• Parallel lines intersect to form right angles.	
• A figure that rotates about a fixed point does not change shape or size.	
• A quadrilateral is a polygon that has four sides.	
• An example of a polygon is a circle.	
• The formula to find the circumference of a circle is $C = 2\pi r$.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 11.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 11 Study Guide and Review in the textbook.

☐ I took the Chapter 11 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- Use the SQ3R method of reading: **S**urvey, **Q**uestion, **R**ead, **R**ecite, and **R**eview. Survey the text by previewing the headings, boldface words, and examples. Ask questions about what you survey, read with purpose, recite out loud the main points and concepts without looking at the text, and review your text notes or use the chapter review at the end of the chapter.

NAME _____ DATE _____ PERIOD _____

CHAPTER 12

Surface Area and Volume

Before You Read

Before you read the chapter, think about what you know about surface area and volume. List three things you already know about them in the first column. Then list three things you would like to learn about them in the second column.

K What I know…	W What I want to find out…

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **Include pictures with your notes.**
  Having diagrams that are labeled with specific parts of each figure will help you understand the formulas.
- **Remember to study your notes daily.**
  Reviewing small amounts at a time will help you retain the information.

NAME _____ DATE _____ PERIOD _____

CHAPTER 12

Surface Area and Volume

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on three-dimensional figures, one fact might be that a face is a flat surface. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
12-1 Three-Dimensional Figures	
12-2 Volume of Prisms	
12-3 Volume of Cylinders	
12-4 Volume of Pyramids, Cones, and Spheres	
12-5 Surface Area of Prisms	
12-6 Surface Area of Cylinders	
12-7 Surface Area of Pyramids and Cones	
12-8 Similar Solids	

NAME _____ DATE _____ PERIOD _____

12-1 Three-Dimensional Figures

What You'll Learn

Skim Lesson 12-1. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

2. _____

Active Vocabulary

New Vocabulary Write the definition next to each term.

plane ▶ _____

_____

solid ▶ _____

polyhedron ▶ _____

edge ▶ _____

vertex ▶ _____

face ▶ _____

prism ▶ _____

base ▶ _____

pyramid ▶ _____

cylinder ▶ _____

_____

cone ▶ _____

_____

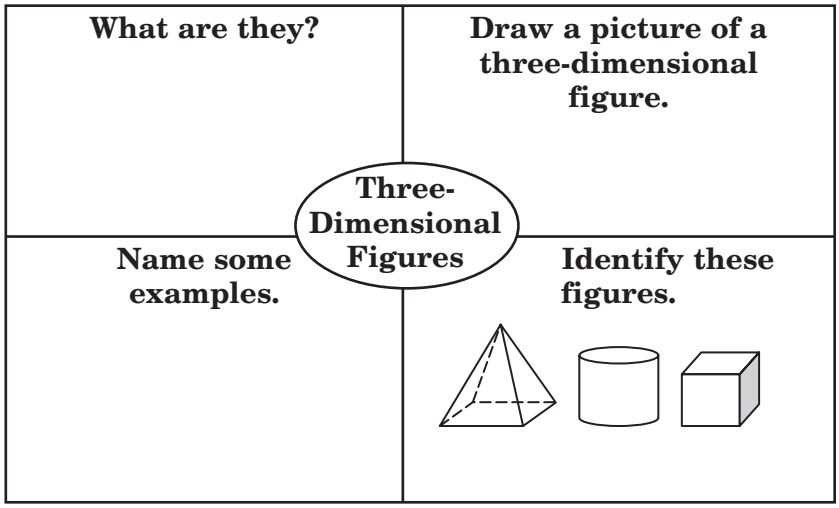
cross section ▶ _____

Lesson 12-1

Main Idea	Details

Identify Three-Dimensional Figures
pp. 664–665

Complete the organizer about *three-dimensional* figures.



Cross Sections
p. 666

Fill in each blank to summarize cross sections.

1. If a cylinder is sliced vertically, the cross section that would result is a(n) _____.

2. When a triangular pyramid is sliced horizontally, the cross section that results is a(n) _____.

3. When a cone is sliced at an angle, the cross section that results is a(n) _____.

4. If a _____ is sliced vertically, the cross section that would result is a square.

Helping You Remember

The word *polyhedron* is composed of the prefix poly- and the root word-*hedron*. Find the definitions of *poly-* and *hedron-* in a dictionary. Write their definitions.

_____

_____

NAME _____ DATE _____ PERIOD _____

12-2 Volume of Prisms

What You'll Learn

Scan Lesson 12-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match the term with its definition by drawing a line to connect the two. *(Lessons 4-1, 4-2, and 5-1)*

simplest form	equation that shows a relationship between quantities
like terms	terms that contain the same variable
simplifying the expressions	an algebraic expression that has no like terms and no parentheses
formula	combine like terms

New Vocabulary Fill in each blank with the correct word or phrase.

volume ▶ The measure of the _____ occupied by a three-dimensional _____.

Vocabulary Link *Volume* is a word that is used in everyday English. Find the definition of *volume* using a dictionary. Write two sentences of how the word *volume* is used in everyday life.

_____

_____

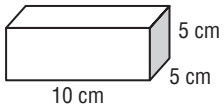
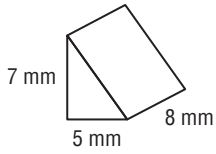
_____

Lesson 12-2

Main Idea	Details

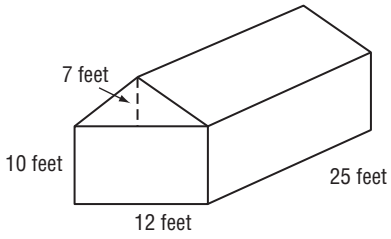
Volume of Prism
pp. 671–672

Compare finding the volume of a rectangular prism with a triangular prism.

	Rectangular Prism	Triangular Prism
Formula	$V =$	$V =$
Area of base	$B =$	$B =$
Sketch the prism and find its volume.		

Volume of Composite Figures
p. 673

Find the volume of the figure. Show your work.



Find the volume of the top. _____

Find the volume of the bottom. _____

Add the volumes. _____

NAME _____ DATE _____ PERIOD _____

12-3 Volume of Cylinders

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. *(Lessons 5-1 and 11-7)*

_____ ▶ the distance around a figure

_____ ▶ an equation that shows a relationship between quantities

_____ ▶ the surface enclosed by a figure

_____ ▶ a set of all points in a plane that is the same distance from a given point called the center

_____ ▶ the given point from which all points on the circle are the same distance

_____ ▶ the distance from the center to any point on the circle

_____ ▶ the distance across the circle through its center

_____ ▶ the distance around a circle

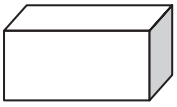
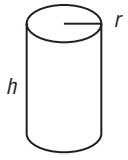
_____ ▶ the ratio of the circumference to the diameter of the circle

Lesson 12-3

Main Idea	Details

Volume of Cylinders
pp. 677–678

Compare how to find the volume of the two figures by completing the chart.

Volume		
	Rectangular Prism	**Cylinder**
Formula	$V = Bh = lwh$	$V = Bh =$
Words	Volume is the area of the base times the height.	Volume is the _____ times the _____.
Model		sample model: 
Examples	A rectangular prism with length 5 in., a width 9 in., and a height of 10 in. has a volume of _____.	A cylinder with radius 7 mm and height 15 mm has a volume of _____.

Volumes of Composite Figures
p. 678

Fill in each blank to complete the steps to find the volume of a composite figure.

Step 1	Step 2	Step 3
_____ the figure into _____.	Find the _____ of each _____ using the correct _____.	Find the _____ of the _____ for the volume of the _____.

Helping You Remember

Describe how to find the height of a cylinder that has a volume of 2,211 mm^3 and a radius of 8 mm.

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

12-4 Volume of Pyramids, Cones, and Spheres

What You'll Learn

Skim Lesson 12-4. Predict two things you expect to learn based on the headings and the Key Concept boxes.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match each term with its definition by drawing a line to connect the two. *(Lesson 12-1)*

solid	a three-dimensional figure with one circular base and a vertex connected by a curved side
polyhedron	a three-dimensional figure
prism	a solid with flat surfaces that are polygons
cone	a polyhedron with one base that is a polygon
pyramid	a polyhedron with two parallel congruent bases

New Vocabulary Fill in each blank with the correct term or phrase.

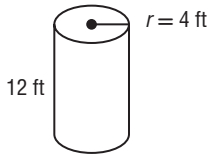
sphere ▶ A set of _____ in space that are a given _____ r from the _____.

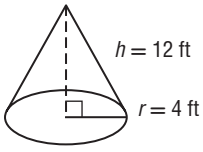
Main Idea	Details

Volume of a Cone
p. 684

Compare the volume of a cylinder and a cone.

Step 1: Find the volume of the two figures.





$V =$ $V =$

$V \approx$ $V \approx$

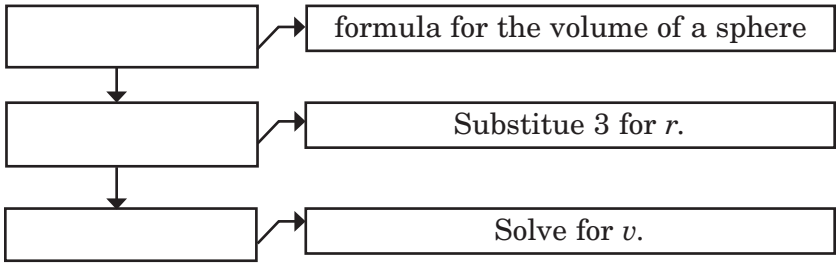
Step 2: Make a conjecture about the relationship between the volume of a cylinder and the volume of a cone with the same height and radius.

_____

_____

Volume of a Sphere
pp. 684–685

Write out each step to find the volume of a sphere with $r = 3$ cm.



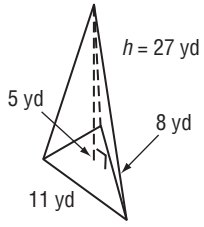
Helping You Remember

Describe each step in finding the volume of the pyramid at the right.

$V = \frac{1}{3}Bh$ _____

$V = \frac{1}{3}\left(\frac{1}{2} \cdot 5 \cdot 8\right)27$ _____

$V \approx 180$ _____



NAME _____ DATE _____ PERIOD _____

12-5 Surface Area of Prisms

What You'll Learn

Scan the text in Lesson 12-5. Write two facts you learned about the surface area of prisms as you scanned the text.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to each definition. *(Lessons 5-1 and 12-1)*

_____ ▶ the distance around a figure

_____ ▶ a flat surface of a solid

_____ ▶ one of two congruent faces of a prism

New Vocabulary Write the definition next to each term.

lateral face ▶ _____

lateral area ▶ _____

surface area ▶ _____

Vocabulary Link *Lateral* is a word that is used in everyday English. Find the definition of *lateral* using a dictionary. Explain how the English definition can help you remember how *lateral* is used in mathematics.

_____

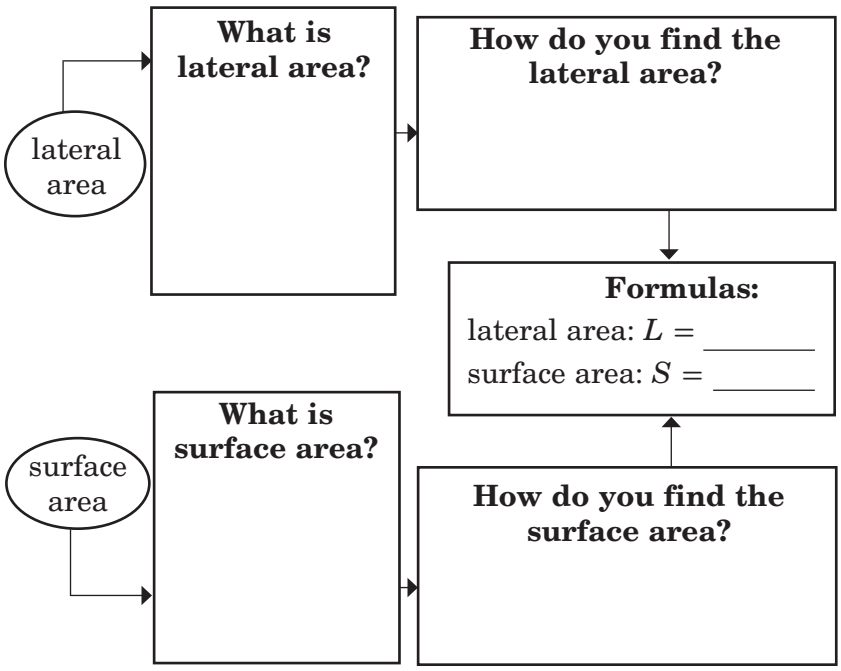
_____

_____

Main Idea	Details

Prisms
pp. 691–692

Summarize information about *lateral* and *surface area* in the graphic organizer below.



Describe how to find the surface area of the figure below.

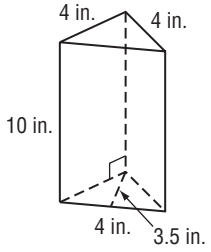
_____

_____

_____

_____

_____



Helping You Remember

How does drawing a net help you find the surface area of a prism? Draw a prism and its net to justify your answer.

_____

_____

NAME _____ DATE _____ PERIOD _____

12-6 Surface Area of Cylinders

What You'll Learn

Skim the lesson. Write two things you already know about the surface area of cylinders.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Fill in each blank with the correct term or phrase. *(Lesson 12-1)*

cylinder ▶ a three-dimensional figure with congruent, _____ bases that are circles connected by a _____ side

cone ▶ a three-dimensional figure with one _____ base and a _____ connected by a _____ side

vertex ▶ where _____ or more planes intersect at a _____

face ▶ a flat _____ of a _____

Vocabulary Link Cylinders are used in everyday life. List four examples of when the lateral area or surface area of a cylinder may be needed.

_____

_____

_____

_____

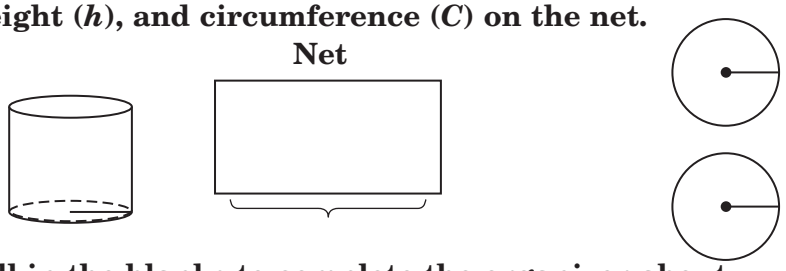
_____

Main Idea	Details

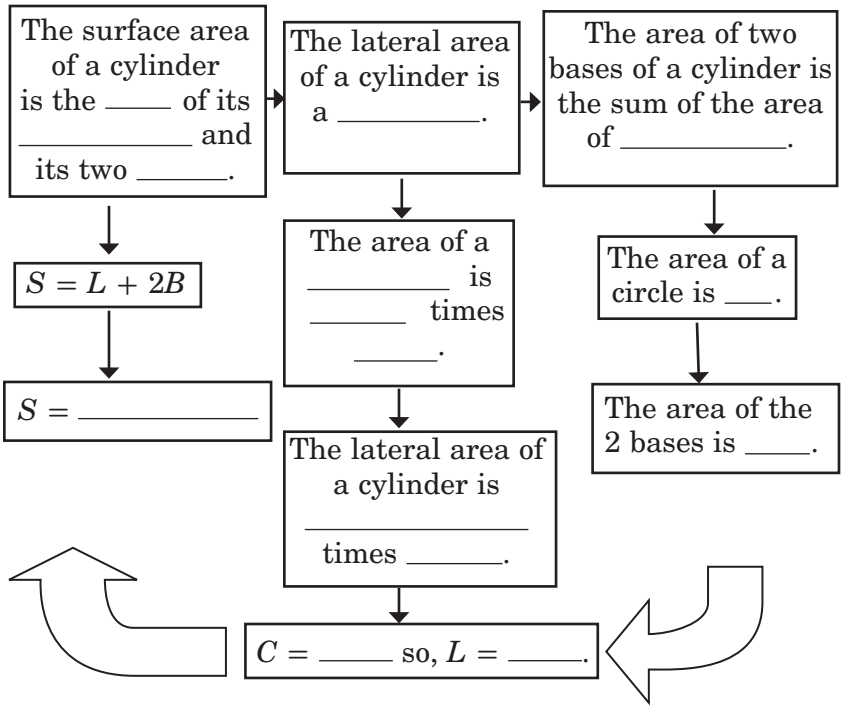
Surface Area of Cylinders

pp. 697–698

Draw the net of the cylinder. Label the radius (r), height (h), and circumference (C) on the net.



Fill in the blanks to complete the organizer about surface area of a cylinder.



Helping You Remember

You want to decorate the side and bottom of a cylindrical flower pot with material. Do you need to calculate the surface area of the pot or the lateral area?

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

12-7 Surface Area of Pyramids and Cones

What You'll Learn

Skim the Examples for Lesson 12-7. Predict two things you think you will learn about the surface area of pyramids and cones.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. *(Lesson 12-5)*

lateral face ▶ _____

_____

lateral area ▶ _____

_____

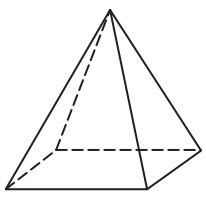
surface area ▶ _____

_____

New Vocabulary Draw an arrow to the diagram that points the slant height of the pyramid. Then label it with the term *slant height*.

slant height ▶

regular pyramid ▶



This figure is a _____ _____ because it has a base that is a regular polygon.

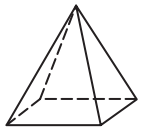
Lesson 12-7

Main Idea	Details

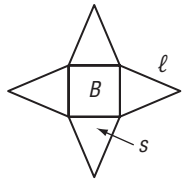
Surface Area of Pyramids
pp. 702–703

Draw the net of the pyramid. Label slant height (ℓ), base (B), and side length (s) of the base on the net.

Figure



Net



Surface Area of Cones
p. 704

Compare the volume of a cone and the surface area of a cone by filling out the chart. Sample answers are given.

Cone	Volume	Surface Area
Formula	$V = \frac{1}{3}\pi r^2 h$	$S = L + \pi r^2$
Words		
Example	Find the volume of a cone with a radius of 5 cm and a height of 7 cm. $V \approx$ _____	Find the surface area of a cone with a radius of 5 cm and a slant height of 7 cm. $S \approx$ _____

Helping You Remember

Prepare a script for a short presentation on how to find the surface areas of pyramids and cones. Be sure to include any necessary vocabulary terms in your explanation. You may wish to include diagrams with your presentation.

NAME _____ DATE _____ PERIOD _____

12-8 Similar Solids

What You'll Learn

Scan Lesson 12-8. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match the term with the definition by drawing a line to connect the two. *(Lessons 6-5 and 6-7)*

cross products	an equation that states that two ratios or rates are equal
similar figures	If $\frac{a}{b} = \frac{c}{d}$, then $ad = cb$.
proportion	figures with congruent corresponding angles and proportional corresponding side lengths

New Vocabulary Fill in each blank with the correct term or phrase.

similar solid ▶ Two figures that have the same _____ and their _____ measures are _____.

Vocabulary Link Similar solids are seen in everyday life. Give an example of items that have the same shape but not necessarily the same size in real life.

_____

_____

_____

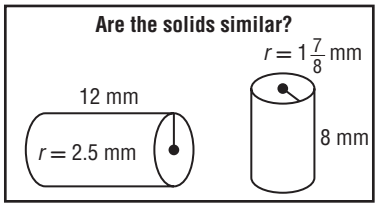
_____

Lesson 12-8

Main Idea **Details**

Identify Similar Solids
pp. 709–710

Complete the organizer by filling in each blank to identify similar solids. Then complete the example.



Step 1:
Set up a _____.

Step 2:
Find the _____.

Step 3:
_____.
If the _____ are _____, the solids are _____.

Step 1:
$\frac{\_\_}{12} = \frac{1.875}{\_\_}$

Step 2:
_____ = 12(1.875)

Step3:
__ ≠ 22.5
___, the solids are _____.

Properties of Similar Solids
pp. 710–711

For each pair of solids listed in the table below, describe measurements you would need to determine if the pair is similar.

Pair of Solids	Measurements Needed
Rectangular Prisms	
Cylinders	
Square Pyramids	
Triangular Prisms	
Cones	

Helping You Remember

Describe the relationship between similar figures for surface area and volume.

_____

_____

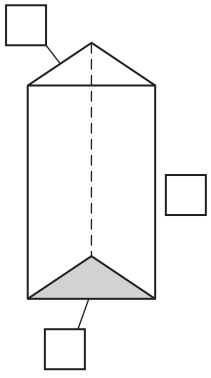
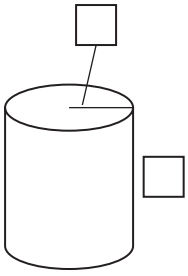
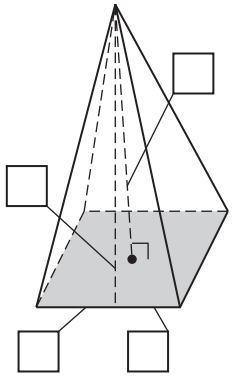
NAME _____ DATE _____ PERIOD _____

CHAPTER 12

Surface Area and Volume

Tie It Together

Fill in the formulas for each solid. Label the appropriate variables on each figure.

	Prism	Cylinder	Pyramid
Volume			
Lateral Area			
Surface Area			
Diagram/Variables			

NAME _____ DATE _____ PERIOD _____

CHAPTER 12

Surface Area and Volume

Before the Test

Review the ideas you listed in the table at the beginning of the chapter. Cross out any incorrect information in the first column. Then complete the table by filling in the third column.

K What I know…	W What I want to find out…	L What I learned…

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 12.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 12 Study Guide and Review in the textbook.

☐ I took the Chapter 12 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- On handouts, homework, and workbooks that can be written in, underline and highlight significant information.

NAME _____ DATE _____ PERIOD _____

CHAPTER 13 Statistics and Probability

Before You Read

Before you read the chapter, respond to these statements.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Statistics and Probability
	• The median of a set of data is the same thing as the average.
	• The range is the difference between the least and greatest numbers.
	• A histogram is a type of graph that uses bars.
	• Probability is expressed as a number between 1 and 100.
	• When something is likely to happen, it is certain.

FOLDABLES® Study Organizer Construct the Foldable as directed at the beginning of this chapter.

Note Taking Tips

- **When you take notes, it may be helpful to sit as close as possible to the front of the class.**
  There are fewer distractions and it is easier to hear.
- **When taking notes on statistics, include your own statistical examples as you write down concepts and definitions.**
  This will help you to better understand statistics.

NAME _____ DATE _____ PERIOD _____

CHAPTER 13

Statistics and Probability

Key Points

Scan the pages in the chapter and write at least one specific fact concerning each lesson. For example, in the lesson on measures of variation, one fact might be that the median of a set of data separates the set in half. After completing the chapter, you can use this table to review for your chapter test.

Lesson	Fact
13-1 Measures of Central Tendency	
13-2 Stem-and-Leaf Plots	
13-3 Measures of Variation	
13-4 Box-and-Whisker Plots	
13-5 Histograms	
13-6 Theoretical and Experimental Probability	
13-7 Using Sampling to Predict	
13-8 Counting Outcomes	
13-9 Permutations and Combinations	
13-10 Probability of Compound Events	

NAME _____ DATE _____ PERIOD _____

13-1 Measures of Central Tendency

What You'll Learn

Skim Lesson 13-1. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Fill in each blank with the missing term or phrase.

mode ▶ the _____ or _____ that occur _____

median ▶ the _____ when data is ordered from _____ to _____ or the _____ of the _____ two numbers

measures of central tendency ▶ describes the _____ of the data

mean ▶ the _____ of the data _____ by the _____ of items in the _____ set

Vocabulary Link *Median* is a word that is used in everyday English. Find the definition of *median* using a dictionary. Give two examples of how *median* might be used in everyday life.

_____

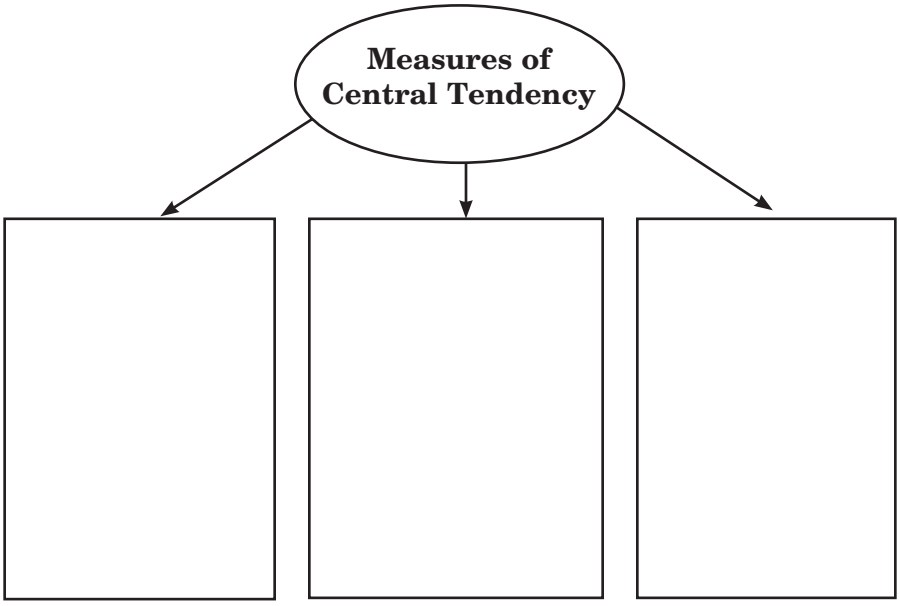
_____

_____

Main Idea	Details

Measures of Central Tendency
pp. 730–732

Complete the organizer. Write the three kinds of measures of central tendency with its definition. Then write a problem with the solution to show an example for each.



The heights of a group of friends are 54, 62, 48, 62, 58, and 58 inches. Fill in each blank to find the measures of central tendency.

1. Write the numbers in order from _____ to _____.

2. Find the _____ of the numbers and _____ by _____.

3. The mean is _____, the median is _____, and the mode is _____.

NAME _____ DATE _____ PERIOD _____

13-2 Stem-and-Leaf Plots

What You'll Learn

Scan Lesson 13-2. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Label the *stems* and *leaves* in both plots. Then name the two types of plots.

stems ▶

leaves ▶

stem-and-leaf plot ▶

back-to-back stem-and-plot ▶

8 6 3	0	4 7 9
0	1	3 7 7 9
8 5 3 3	2	0 0 5 8
9 9 7 4	3	0 0 1 1 3
2 1	4	3 7
	5	1

3 | 1 = 31

0	4 7 9
1	3 7 7 9
2	0 0 5 8
3	0 0 1 1 3 4 7
4	3 7
5	1

0 | 9 = 9

_____ _____

Main Idea

Display Data
p. 737

Details

Explain the steps to construct a stem-and-leaf plot.

Step 1:
Find the _____ and _____ numbers. Identify the _____ place value. The _____ are the greatest place value of the data.

→

Step 2:
List the _____ in order in the stem column. Write the rest of the digits in the _____ column. Order the leaves from _____ to _____.

→

Step 3:
Remember to include a _____ and a _____.

Lesson 13-2

Main Idea **Details**

Interpret Data
pp. 738–739

Complete the stem-and-leaf plot using the data in the table.

Books Checked Out Weekly					
115	113	125	145	119	117
101	156	154	118	154	132
100	122	106	111	126	130

What does the Stem '14' represent? _____

What is the greatest number of books checked out? _____

What is the mode of the data? _____

How many weeks does the data cover? _____

Helping You Remember

Measures of central tendency can be easily found using a stem-and-leaf plot. Explain how you could use the data in the stem-and-leaf plot below to find the mean, median, and mode. Then find the measures.

NAME _____ DATE _____ PERIOD _____

13-3 Measures of Variation

What You'll Learn

Skim the Examples for Lesson 13-3. Predict two things that you will learn about measures of variation.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to the definition. *(Lesson 13-1)*

_____ ▶ The middle number when data is ordered from least to greatest or the mean of the middle two numbers

New Vocabulary Fill in the diagram with correct terms.

range ▶

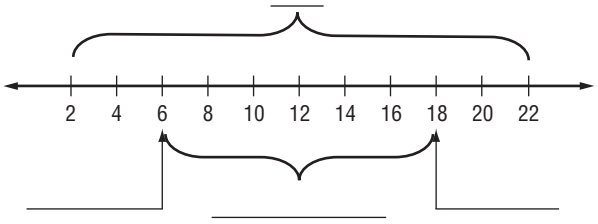
quartiles ▶

upper quartile ▶

lower quartile ▶

interquartile range ▶

outlier ▶



_____ are the values that divide the data into four equal parts.

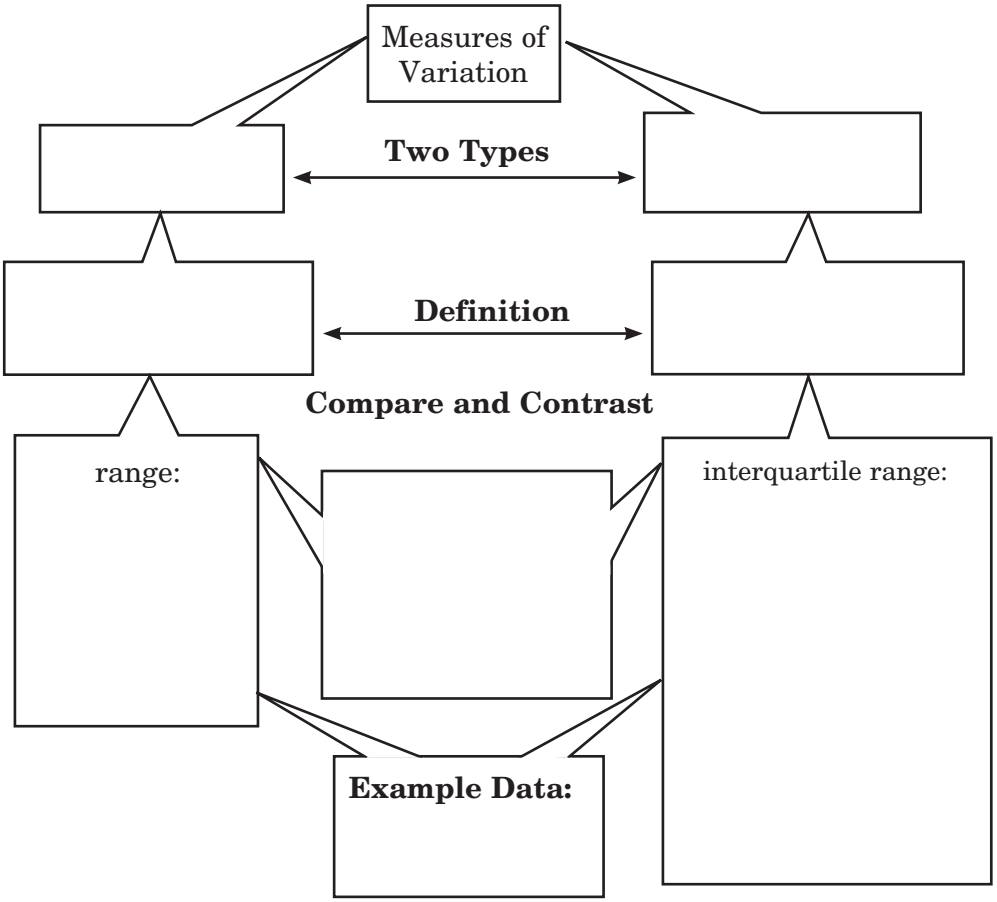
An _____ is a value that is more than 1.5 times the value of the interquartile range beyond the quartiles.

Lesson 13-3

Main Idea	Details

Measures of Variation
pp. 743–745

Complete the diagram and the example.



Use Measures of Variation
pp. 745–746

Use the test scores from the table to answer the questions below.

Jackson	67	80	78	75	80	79	77	79	55
Terry	68	77	60	77	71	72	52	63	59

What is the range of Jackson's and Terry's scores? _____

What conclusions can be drawn from the ranges? _____

_____

_____

What are the interquartile ranges for each student?

_____

What conclusions can be drawn from the interquartile ranges? _____

_____

NAME _____ DATE _____ PERIOD _____

13-4 Box-and-Whisker Plots

What You'll Learn

Skim the lesson. Write two things you already know about box-and-whisker plots.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Fill in each blank with the correct term or phrase.

box-and-whisker plot ▶ uses a _____ to show the _____ of a set of _____; also known as a _____

Main Idea

Details

Display Data
p. 750

Complete the organizer to explain the steps to construct a box-and-whisker plot. Then complete the example.

Step 1:
Draw a _____ that includes the _____ and values.

Step 2:
Mark the _____ and _____ values, the _____ , the _____ and _____ _____. Check for _____.

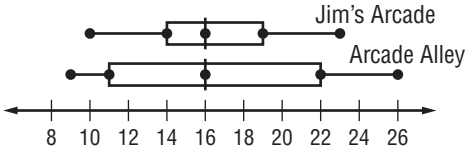
Step 3:
Draw the _____ and _____.

Data: 14, 33, 28, 8, 32, 36, 31

Lesson 13-4

Main Idea	Details
Interpret Box-and-Whisker Plots p. 750	**Use the information from the box-and-whisker plot to answer each question.**

Ages of Arcade Players



1. Which arcade attracts a wider range of ages? _____

_____

2. What age is 25% of the age group at Jim's Arcade less than? _____

3. Compare the median for both arcades. What can you conclude?

_____

_____

Helping You Remember

Describe in detail how to determine if an outlier exists in a data set.

_____

_____

_____

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

13-5 Histograms

What You'll Learn

Scan the text in Lesson 13-5. Write two facts you learned about histograms.

1. _____

_____

2. _____

_____

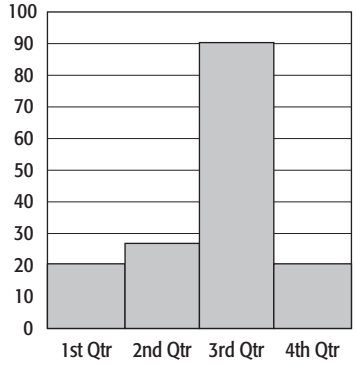
Active Vocabulary

Review Vocabulary Write the term under the correct display. *(Lessons 13-2 and 13-4)*

stem-and-leaf plot ▶

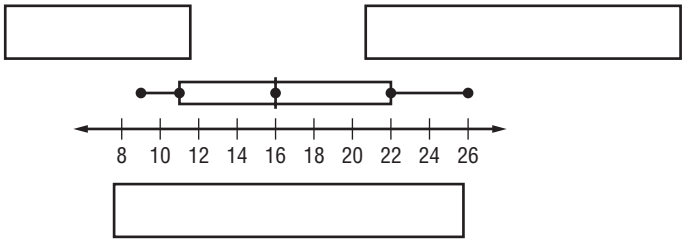
box-and-whisker plot ▶

histogram ▶



Stem	Leaf
0	4 7 9
1	3 7 7 9
2	0 0 5 8
3	0 3
4	3 7
5	1

$3|3 = 33$



New Vocabulary Write the term *histogram* under the correct display.

Vocabulary Link The data on a histogram is in equal intervals. Name three examples of data that could be displayed in a histogram.

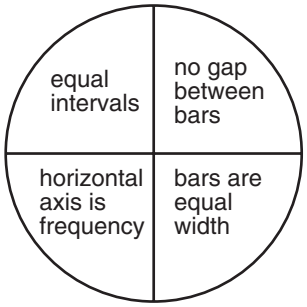
_____

Lesson 13-5

Main Idea	Details

Displayed Data
p. 757

Cross out the part of the concept circle that does not belong. Explain.



_____
_____
_____
_____

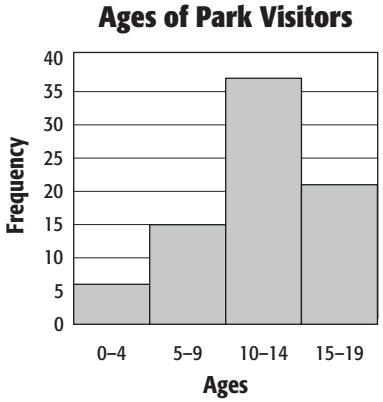
Interpret Data
p. 758

Use the information from the histogram to answer each question.

1. How many park visitors are under the age of 10?____

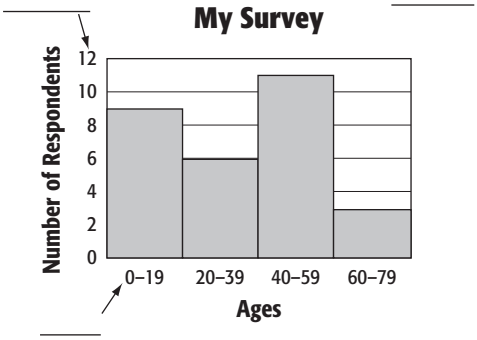
2. How many more visitors are in the 10-14 age interval than in the 0-4 age interval?____

3. About what percent of the visitors are between ages 15 and 19? _____
_____
_____
_____
_____



Helping You Remember

Label the histogram: frequency, bar, interval, and histogram. Make a frequency table showing the same information as the histogram.



NAME _____ DATE _____ PERIOD _____

13-6 Theoretical and Experimental Probability

What You'll Learn

Scan the text under the *Now* heading. List two things you will learn about in the lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

New Vocabulary Fill in each blank with the correct term or phrase.

simple event ▶ one _____ or a collection of _____

outcomes ▶ the _____ of an event or experiment

sample space ▶ the set of all possible _____

random ▶ when each outcome is equally _____ to occur

probability ▶ a _____ that compares the number of _____ outcomes to the number of _____ outcomes

theoretical probability ▶ what _____ occur in an experiment

experimental probability ▶ what _____ occurs when repeating a probability experiment many times

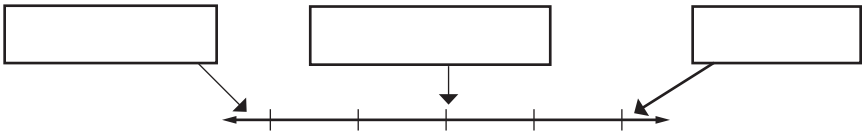
odds in favor ▶ the _____ that compares the number of ways an event ____ occur to the number of ways that the event _____ occur

odds against ▶ the _____ that compares the number of ways an event _____ occur to the number of ways that the event ____ occur

Main Idea	Details

Probability of Simple Events
pp. 765–767

Fill in each blank with the terms, *certain*, *impossible*, or *equally likely*. Then answer the questions below with *true* or *false*.



1. Probability is a ratio that compares the number of possible outcomes to the number of favorable incomes. _____

2. The closer a probability is to 1, the less likely it is to occur. _____

3. Experimental probability is what actually happens, while theoretical probability is what should happen. ____

Use a Sample to Make a Prediction
p. 767

The table shows the results from a survey that asked students about their favorite school subject. If 50 more students are picked at random, predict how many will *not* have a favorite subject of math?

Favorite Subject	
subject	**frequency**
science	22
social studies	22
language arts	26
math	30

Helping You Remember

Look up *theoretical* and *experimental* in the dictionary. How can the definitions help you to remember the difference between *theoretical* probability and *experimental* probability?

_____

_____

_____

NAME _____ DATE _____ PERIOD _____

13-7 Using Sampling to Predict

What You'll Learn

Skim the lesson. Write two things you already know about using sampling to predict.

1. _____

2. _____

_____

Active Vocabulary

New Vocabulary Write the definition next to each term.

sample ▶ _____

population ▶ _____

unbiased sample ▶ _____

_____

simple random sample ▶ _____

_____

stratified random sample ▶ _____

_____

systemic random sample ▶ _____

_____

biased sample ▶ _____

convenience sample ▶ _____

_____

voluntary response sample ▶ _____

_____

Lesson 13-7

Main Idea	Details

Identify Sampling Techniques
pp. 771–772

Compare *biased* and *unbiased* sampling techniques by completing the chart below. Sample answers are given.

Technique	Biased Sampling	Unbiased Sampling
What is it?		
How are they the same?		
How are they different?		
What are some examples?		
Is it biased or unbiased?	on-line polls that request visitors to participate: _____ a surveyor who visits every 25th house in neighborhood: _____	

Validating and Predicting Samples
pp. 772–773

A manufacturer makes 1500 phones and tests every 10th phone for defects. Of the phones, 24 were defective.

Is this sampling valid? ____

How many of the 1500 could you expect to be defective? ____

Helping You Remember

How can you remember the difference between *biased* and *unbiased* sampling?

_____

_____

NAME _____ DATE _____ PERIOD _____

13-8 Counting Outcomes

What You'll Learn

Skim Lesson 13-8. Predict two things that you expect to learn based on the headings and the Key Concept box.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Match each definition with the term by drawing a line to connect the two. (*Lesson 13-6*)

random	the results of an event or experiment
sample space	the set of all possible outcomes
probability	when each outcome is likely to occur
outcomes	a ratio that compares the number of favorable outcomes to the number of possible outcomes

New Vocabulary Fill in each blank with the missing term or phrase.

tree diagram ▶ a _____ that shows different _____ for an _____ or _____

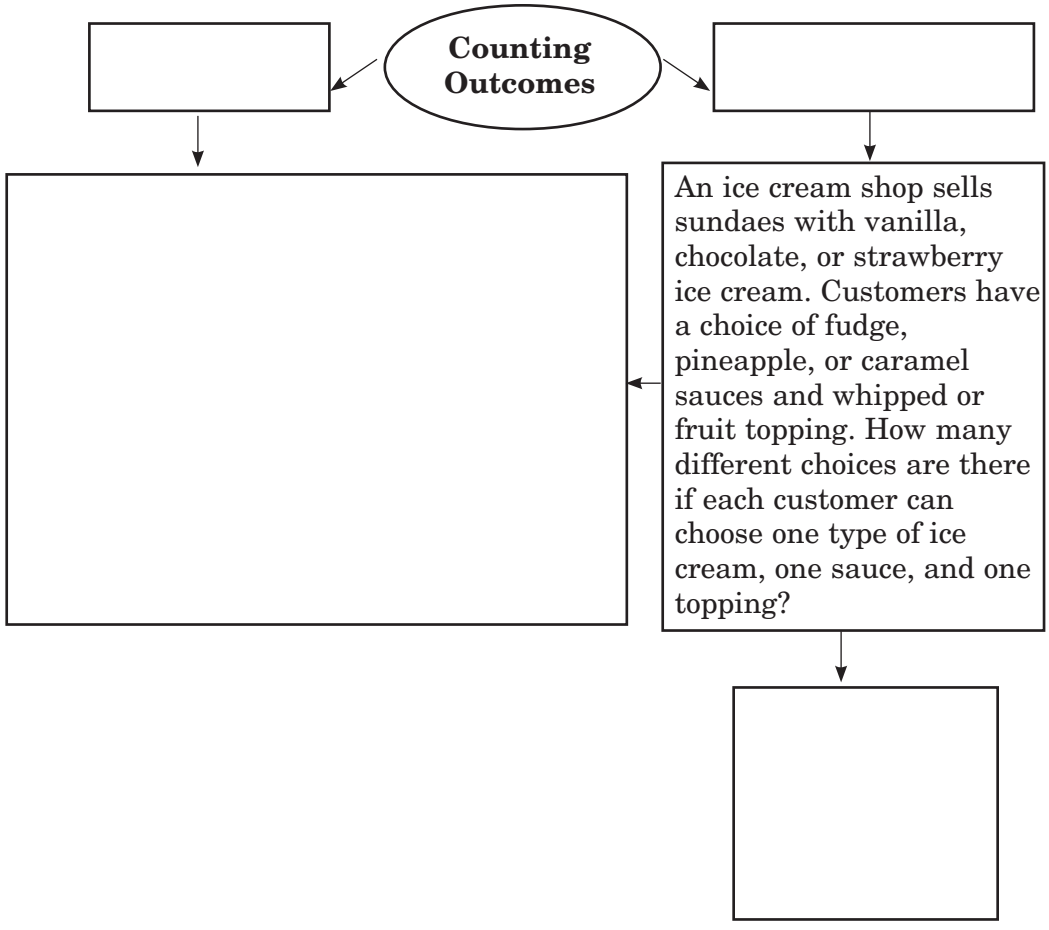
Fundamental Counting Principle ▶ _____ the number of _____ to the _____ of _____

Lesson 13-8

Main Idea	Details

Counting Outcomes
pp. 777–778

Write the two methods to find possible outcomes of an event. Then use each method to find the outcomes of the example.



Find the Probability of an Event
pp. 778–779

Find each probability using a number cube labeled 1 through 6.

1. What is the probability of tossing a 1 and then a 2?

2. What is the probability of tossing a number greater than 4 on two consecutive tosses?

NAME _____ DATE _____ PERIOD _____

13-9 Permutations and Combinations

What You'll Learn

Scan Lesson 13-9. List two headings you would use to make an outline of this lesson.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition next to each term. (*Lesson 13-6*)

random ▶ _____

probability ▶ _____

_____

theoretical probability ▶ _____

experimental probability ▶ _____

_____

New Vocabulary Fill in each blank with the correct word or phrase.

permutations ▶ an _____ or listing in which order ____ important

combinations ▶ an _____ or listing in which order _____ important

Vocabulary Link The root of permutation is *permute*. Look up *permute* in the dictionary. How can the English definition help you remember the mathematic definition?

_____

_____

_____

Main Idea	Details

Use Permutations
pp. 783–784

Fill in each blank to answer the question.

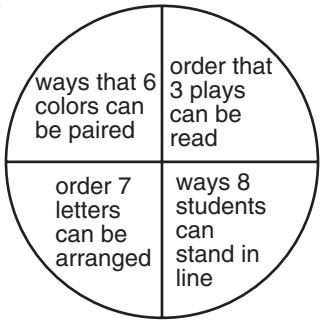
How many ways can a 4-digit PIN number be made using the numbers 0 through 9 if each number can only be used once?

$P(\_\ \_) =$ Write the notation for a permutation with 10 digits used 4 at a time.

$P(\_\ \_) = \_ \cdot \_ \cdot \_ \cdot \_$
$= \_\_\_\_$ Use the Fundamental Counting Principle to find the number of possible permutations.

Use Combinations
pp. 784–785

Cross out the part of the concept circle that does not belong. Then state the relationship between the remaining parts.



_____

_____

Helping You Remember

Complete the diagram by writing the words *combinations* and *permutations* in the correct blanks. Then write a sentence based on the diagram stating the difference between permutations and combinations.

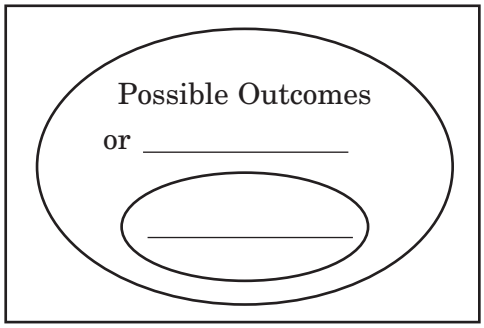
_____

_____

_____

_____

_____



NAME _____ DATE _____ PERIOD _____

13-10 Probability of Compound Events

What You'll Learn

Skim the Examples for Lesson 13-10. Predict two things that you will learn about the probability of compound events.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the term next to the definition. (*Lesson 13-6*)

_____ ▶ one outcome or a collection of outcomes

New Vocabulary Write the term next to each definition.

_____ ▶ The outcome of one event does not influence the outcomes of a second event.

_____ ▶ consists of two or more simple events

_____ ▶ two events that cannot happen at the same time

_____ ▶ The outcomes of one event affects the outcomes of a second event.

Vocabulary Link *Independent* and *dependent* are words that are used in everyday English. Describe an independent and dependent event that occurs in everyday life.

_____

_____

_____

_____

_____

Main Idea	Details

Probabilities of Independent and Dependent Events
pp. 790–791

Fill in each blank with *dependent* or *independent*.

1. A card is turned over and a number cube is tossed. _____
2. One marble is randomly picked from a bag. Then a second marble is chosen without replacing the first marble. _____
3. A scarf is randomly chosen from a bag. After putting the first scarf back into the bag, another scarf is chosen. _____
4. Two coins are tossed at the same time. _____
5. There are a dozen different flavored bagels in a bag. Jackson reaches in and grabs one. Then Iona grabs one. _____

Mutually Exclusive Events
p. 792

Compare finding the probability of an independent or dependent event, and two mutually exclusive events. Sample answers are given.

	Independent Events	Dependent Events	Mutually Exclusive Events
What is it?			
How do you find the probability?			

NAME _____ DATE _____ PERIOD _____

CHAPTER 13

Statistics and Probability

Tie It Together

List concepts and vocabulary from the chapter that fit into each square.

Statistics	Data Displays
Sampling	**Probability**

NAME _____ DATE _____ PERIOD _____

CHAPTER 13

Statistics and Probability

Before the Test

Now that you have read and worked through the chapter, think about what you have learned and complete the table below. Compare your previous answers with these.

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Statistics and Probability	After You Read
• The median of a set of data is the same thing as the average.	
• The range is the difference between the least and greatest numbers.	
• A histogram is a type of graph that uses bars.	
• Probability is expressed as a number between 1 and 100.	
• When something is likely to happen, it is certain.	

Math Online Visit *glencoe.com* to access your textbook, more examples, self-check quizzes, personal tutors, and practice tests to help you study for concepts in Chapter 13.

Are You Ready for the Chapter Test?

Use this checklist to help you study.

☐ I used my Foldable to complete the review of all or most lessons.

☐ I completed the Chapter 13 Study Guide and Review in the textbook.

☐ I took the Chapter 13 Practice Test in the textbook.

☐ I used the online resources for additional review options.

☐ I reviewed my homework assignments and made corrections to incorrect problems.

☐ I reviewed all vocabulary from the chapter and their definitions.

- If possible, rewrite your notes. Not only can you make them clearer and neater, rewriting them will help you remember the information.