Lesson 6-5

Example 1 Identify Proportional Relationships
GROCERY SHOPPING Determine whether price is proportional to weight if a 9 ounce box of chocolate costs $6 and a 32 ounce box of chocolate costs $20.

$\frac{6}{9} \stackrel{?}{=} \frac{20}{32}$ Write a proportion.

$6 \times 32 \stackrel{?}{=} 9 \times 20$ Find the cross products.

$192 \neq 180$ Multiply.

The cross products are not equal, so the price is not proportional to the weight of the box.

Example 2 Solve a Proportion
Solve $\frac{6}{15} = \frac{a}{45}$.

$\frac{6}{15} = \frac{a}{45}$ Write the proportion.

$6 \cdot 45 = 15 \cdot a$ Find the cross products.

$270 = 15a$ Multiply.

$\frac{270}{15} = \frac{15a}{15}$ Divide each side by 15.

$18 = a$ Simplify.

The solution is 18.

Example 3 Solve a Proportion
Solve $\frac{2.4}{12} = \frac{6}{x}$.

$\frac{2.4}{12} = \frac{6}{x}$ Write the proportion.

$2.4x = 6 \cdot 12$ Find the cross products.

$2.4x = 72$ Multiply.

$\frac{2.4x}{2.4} = \frac{72}{2.4}$ Divide each side by 2.4.

$30 = x$ Simplify.

The solution is 30.

Example 4 Solve Proportions

CANDY In a bag of jelly beans, the ratio of pink jelly beans to yellow jelly beans is 2 to 5. Find the number of yellow jelly beans in a bag that has 8 pink jelly beans.

pink → / yellow →	$\frac{2}{5} = \frac{8}{y}$	Write a proportion.
	$2 \cdot y = 5 \cdot 8$	Find the cross products.
	$2y = 40$	Multiply.
	$\frac{2y}{2} = \frac{40}{2}$	Divide each side by 2.
	$y = 20$	Simplify.

So, a bag with 8 pink jelly beans has 20 yellow jelly beans.