Lesson 9-1

Example 1 Find a Function Value
Find $f(3)$ if $f(x) = x - 2$.

$f(x) = x - 2$ Write the function.
$f(3) = 3 - 2$ or 1 Substitute 3 for x into the function rule.

So, $f(3) = 1$.

Example 2 Find a Function Value
Find $f(-4)$ if $f(x) = 3x + 4$.

$f(x) = 3x + 4$ Write the function.
$f(-4) = 3(-4) + 4$ Substitute –4 for x into the function rule.
$f(-4) = -12 + 4$ or –8 Simplify.

So, $f(-4) = -8$.

Example 3 Make a Function Table
Complete the function table for $f(x) = x + 3$. Then state the domain and range of the function.

Substitute each value of x, or input, into the function rule. Then simplify to find the output.

$f(x) = x + 3$
$f(-2) = -2 + 3$ or 1
$f(-1) = -1 + 3$ or 2
$f(0) = 0 + 3$ or 3
$f(1) = 1 + 3$ or 4
$f(2) = 2 + 3$ or 5

The domain is {–2, –1, 0, 1, 2}.
The range is {1, 2, 3, 4, 5}.

Input x	Rule $x + 3$	Output $f(x)$
–2		
–1		
0		
1		
2		

Input x	Rule $x + 3$	Output $f(x)$
–2	–2 + 3	1
–1	–1 + 3	2
0	0 + 3	3
1	1 + 3	4
2	2 + 3	5

Example 4 Functions with Two Variables
PET FOOD The Stalders need 7 pounds of dog food each month to feed their two dogs. Write a function using two variables to represent the amount of dog food needed for *m* months. Then determine how much dog food the Stalders will need to feed their dogs for 6 months.

Words Amount of food equals 7 pounds times the number of months.
Function $f = 7 \cdot m$

The function $f = 7m$ represents the situation.

To find the amount of dog food needed for the next 6 months, substitute 6 for *m* into the function rule.

$f = 7m$
$f = 7(6)$ or 42 The Stalders need 42 pounds of dog food.