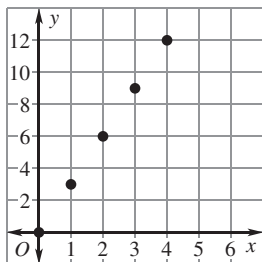Name _____ Date _____

Study Guide
For use with the lesson "Represent Functions as Graphs"

GOAL **Represent functions as graphs.**

EXAMPLE 1 **Graph a function**

Graph the function $y = 3x$ with domain 0, 1, 2, 3, and 4.

Solution

STEP 1 **Make** an input-output table.

x	0	1	2	3	4
y	0	3	6	9	12

STEP 2 **Plot** a point for each ordered pair (x, y).

Exercises for Example 1

Graph the function.

1. $y = \frac{1}{2}x + 3$

    Domain: 0, 2, 4, 6, and 8

2. $y = 4x - 4$

    Domain: 1, 2, 3, 4, and 5

3. $y = -\frac{3}{4}x + 6$
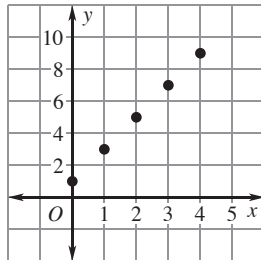
    Domain: 0, 4, 8, 12, and 16

4. $y = -2x + 7$

    Domain: 1, 2, 3, 4, and 5

LESSON 1.8

Study Guide *continued*

For use with the lesson "Represent Functions as Graphs"

EXAMPLE 2 ## Write a function rule for a graph

Write a rule for the function represented by the graph. Identify the domain and the range of the function.

Solution

STEP 1 Make a table for the graph.

| x	0	1	2	3	4
y	1	3	5	7	9

STEP 2 Find a relationship between the inputs and outputs. Notice from the table that each output value is 1 more than twice the corresponding input value.

STEP 3 Write a function rule that describes the relationship: $y = 2x + 1$.

A rule for the function is $y = 2x + 1$. The domain of the function is 0, 1, 2, 3, and 4. The range is 1, 3, 5, 7, and 9.

Exercises for Example 2

Write a rule for the function represented by the graph. Identify the domain and the range of the function.
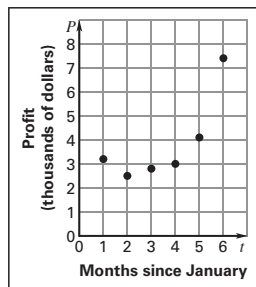
5.

6.
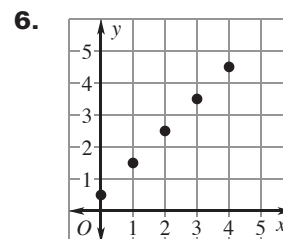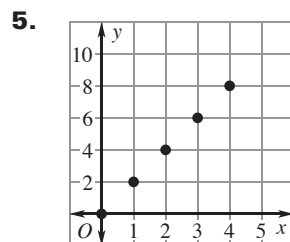
LESSON 1.8

Lesson 1.8 Represent Functions as Graphs, *continued*

13. $y = \frac{1}{10}x$; domain: 10, 20, 30, 40; range: 1, 2, 3, 4

14.

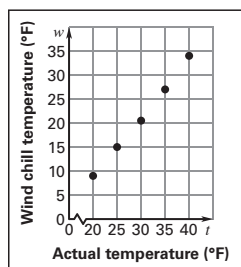| Months since January	1	2	3
Profit (dollars)	3200	2500	2800
Profit (thousands of dollars)	3.2	2.5	2.8

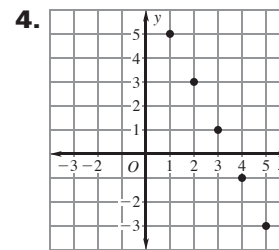| Months since January	4	5	6
Profit (dollars)	3000	4100	7400
Profit (thousands of dollars)	3	4.1	7.4

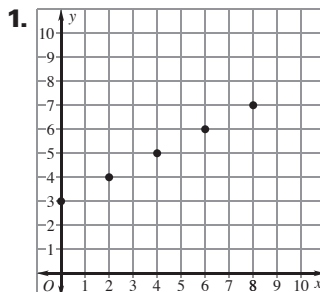**15. a.**

b. As the temperature decreases, the wind chill temperature decreases.

Study Guide

1.

2.

3.

4.
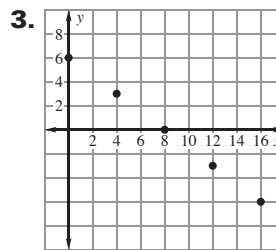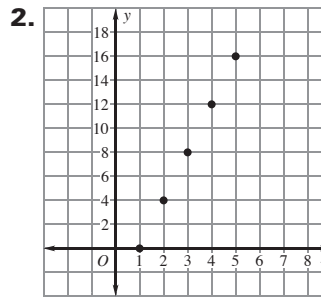
5. $y = 2x$; domain: 0, 1, 2, 3, and 4; range 0, 2, 4, 6, and 8

6. $y = x + \frac{1}{2}$; domain: 0, 1, 2, 3, and 4; range 0.5, 1.5, 2.5, 3.5, 4.5

Problem Solving Workshop: Mixed Problem Solving

1. a. $c = 4p$ **b.** 68 calories

2. a. $C = 9.95 + 22p$

b.

Poses, p	1	2	3	4
Total Cost, C	31.95	53.95	75.95	97.95

Poses, p	5	6	7	8
Total Cost, C	119.95	141.95	163.95	185.95

The table represents a function because each input corresponds to exactly one output.
domain: 1, 2, 3, 4, 5, 6, 7, 8; range: 31.95, 53.95, 75.95, 97.95, 119.95, 141.95, 163.95, 185.95
c. 3 poses   **3.** No; Because the area of the room is 96 square feet and the width of the room is 8 feet, the length of the room must be 12 feet. So, the perimeter of the room is 40 feet. You need 4 more feet of border.   **4.** 4275   **5.** Answers will vary.

6. As t increases, the value of the car decreases. Yes; $4240 is less than the value of a car 5 years after it's purchased.   **7.** 4 hours

8. a. $C = 14.50b$; $A = 25b$