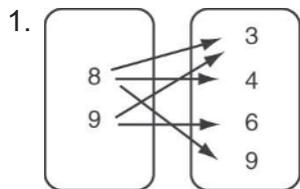


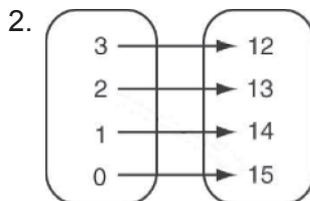
LESSON
6-1

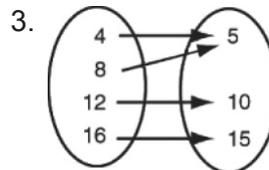
Identifying and Representing Functions

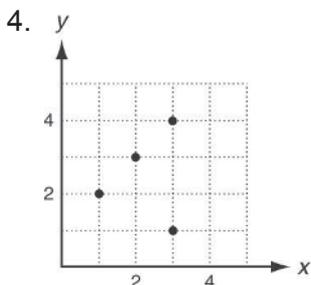
Practice and Problem Solving: A/B

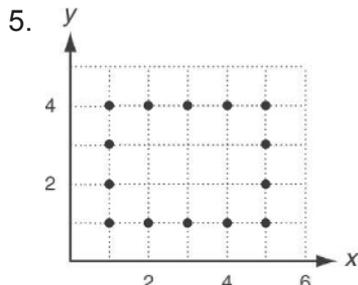
Tell whether each relationship is a function.

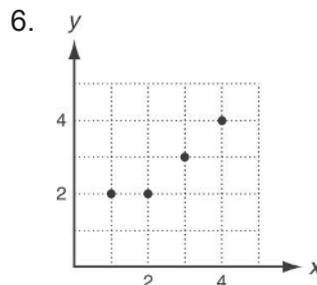












7.

Input	0	1	2	3
Output	4	1	0	4

8.

Input	1	2	0	1	2
Output	4	5	6	7	8

9. $\{(0, 0), (2, 4), (3, 6), (5, 5), (7, 6)\}$

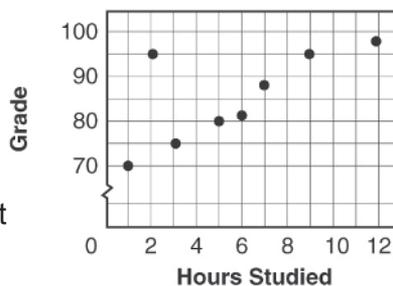
10. $\{(0, 8), (1, 2), (3, 7), (5, 9), (3, 6)\}$

The graph shows the relationship between the hours Rachel studied and the exam grades she earned.

11. Is the relationship a function? Justify your answer. Use the words “input” and “output” in your explanation, and connect them to the context represented by the graph.

12. Rachel plans to study 2 hours for her next exam. How might plotting her grade on the same graph change your answer to Exercise 11? Explain your reasoning.

Hours Studied and Exam Grade



- Not linear; the rate of change in the height increases and then decreases as the horizontal distance traveled increases.
- Linear; the rate of change in the perimeter is 4, which is constant.

Reteach

1.

Time (h)	Snow Accumulation (in.)
1	5
2	7
3	9
4	11
5	13

9 inches

2.

Prints	Total Cost (\$)
2	3.00
3	4.50
4	6.00
5	7.50
6	9.00
7	10.50

\$9.00

Reading Strategies

- If the graph is a line, then the relationship is linear. If the graph is not a line, then the relationship is nonlinear.
- A linear relationship has a constant rate of change, and a nonlinear relationship does not have a constant rate of change.
- Find the rate of change of the data values. A linear relationship has a constant rate of change, and a nonlinear relationship does not have a constant rate of change.
- Yes; use two points on the line to find the slope, and use the slope and one point on the line to find the y -intercept. Write an equation using the slope and y -intercept.

Success for English Learners

- The slope represents the hourly rate of the plumber. The y -intercept represents the cost of the materials.
- Answers will vary. Sample answer: The table can represent the speed y (in miles per hour) that a train travels after x hours.

MODULE 5 Challenge

- The slope of \overline{MN} is found by using $M(0, 3)$ and $N(4, 0)$: $m = \frac{3-0}{0-4} = -\frac{3}{4}$.
The y -intercept comes from point M : $b = 3$. Use the slope-intercept form:
 $y = mx + b = -\frac{3}{4}x + 3$. Rearrange into the standard form: $y = -\frac{3}{4}x + 3$; $4y = -3x + 12$ or $3x + 4y = 12$.
- Find the slope of \overline{JL} using the points $J(4, -2)$ and $L(6, 6)$: $m = \frac{-2-6}{4-6} = \frac{-8}{-2} = 4$.
Use one of the two points and the point-slope form. Using point $J(4, -2)$, $y - (-2) = 4(x - 4)$ or $y + 2 = 4x - 16$. Rearrange into standard form: $-4x + y = -18$.

MODULE 6 Functions

LESSON 6-1

Practice and Problem Solving: A/B

- not a function
- function
- function
- not a function
- not a function
- function
- function
- not a function
- function
- not a function
- Yes. Each input value (the hours studied) is paired with only one output value (the grade).

12. If she got a grade of anything but a 95, it would no longer be a function because the input value, 2 hours, would be paired with two different output values.

Practice and Problem Solving: C

- not a function; input value 2 is paired with more than one output value, 8 and 9
- function; each input value is paired with only one output value
- No; There are at least four Mondays, each likely to have a different output value (different amounts of mulch applied). Also, there are at least four of each other day, with different outputs likely.
- Yes. For each weight of beads she buys (input), there can only be one dollar amount representing the amount of money she pays (output).
- There is only one number of animals for each day, so each input is paired with only one output.
- No; Each day (input) would then most likely have two number of animals (outputs) paired with it.

Practice and Problem Solving: D

- function
- not a function
- not a function
- function
- not a function
- function
- not a function
- function
- C
- It is a function because there is only one year number (input) paired with each number of elephants (output).

Reteach

- $\{((1), 1), ((2), 3), ((3), 5)\}$
- $\{((6), 2), ((5), 3), ((4), 8)\}$
- Yes; Each input value is paired with only one output value.
- No; The input value 1 is paired with both 2 and 8.

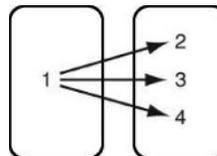
- Yes; Each input value is paired with only one output value.
- No; The input value 1 is paired with both 1 and 2.

Reading Strategies

1. Sample answer:

Input	1	2	3	4
Output	1	2	3	4

2. Answers will vary. Sample answer:



- Answers will vary. Sample answer: because the input value 1 is paired with more than one output value
- no
- no
- yes

Success for English Learners

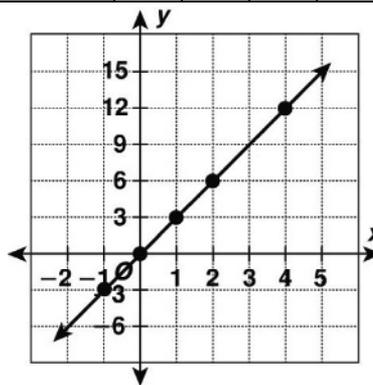
- If any input (x-value) has more than one output (y-value), the relation is not a function.
- Yes. Since the input values 3 and 5 are each only paired with one output value, it is a function.

LESSON 6-2

Practice and Problem Solving: A/B

1.

Input, x	-1	0	1	2	4
Output, y	-3	0	3	6	12



Linear