

Name: _____

Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 6: Functions and Graphing

Assessment

Progress Assessment

Circle the letter of the best answer.

1. What is true about the set of all solutions for $y = f(x)$?
 - a. It can be graphed.
 - b. It is infinite.
 - c. It is a set of ordered pairs.
 - d. all of the above

2. The graphical representation of the solution set for $y = f(x)$ is _____.
 - a. always a straight line
 - b. called a curve
 - c. a plane
 - d. a circle

- * 3. Which of the following relations is a function?
 - a. $\{(2, 1), (1, 1), (4, 6), (5, 1)\}$
 - b. $\{(9, 3), (6, 3), (5, 8), (5, 2)\}$
 - c. $\{(1, 0), (1, 1), (0, 1), (0, 0)\}$
 - d. $\{(1, 1), (1, 2), (2, 3), (3, 5)\}$

4. If $f(x) = 2x + 7$, what is $f(x + 2)$?
 - a. $2x + 11$
 - b. $2x + 14$
 - c. $2x + 9$
 - d. $x + 2$

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Name: _____

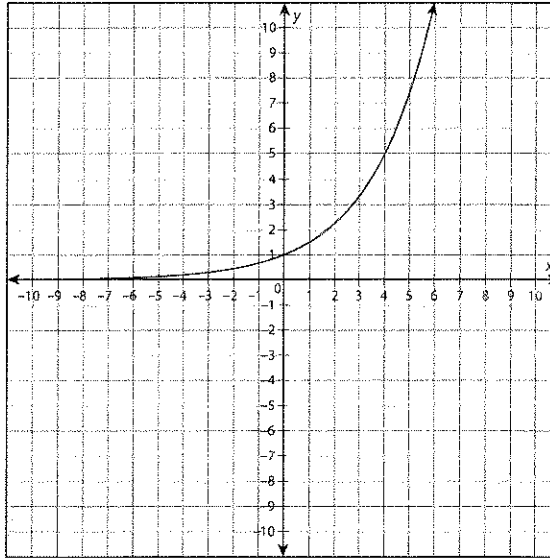
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 6: Functions and Graphing

Assessment

5. If the domain of the graphed function is all real numbers, what is the range of the function?



- a. all real numbers
b. $x < 6$
c. $f(x) > 0$
d. $f(x) \geq 0$

- * 6. If $f(x) = 2x + 1$, and the domain of f is $\{5, 25, 50\}$, what is the range of f ?
- a. $\{5, 25, 50\}$
b. $\{10, 50, 100\}$
c. $\{11, 51, 101\}$
d. $\{0, 5, 10\}$

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Name: _____

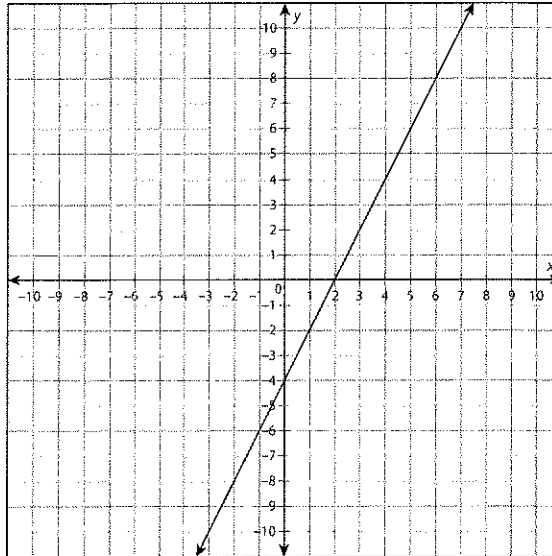
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

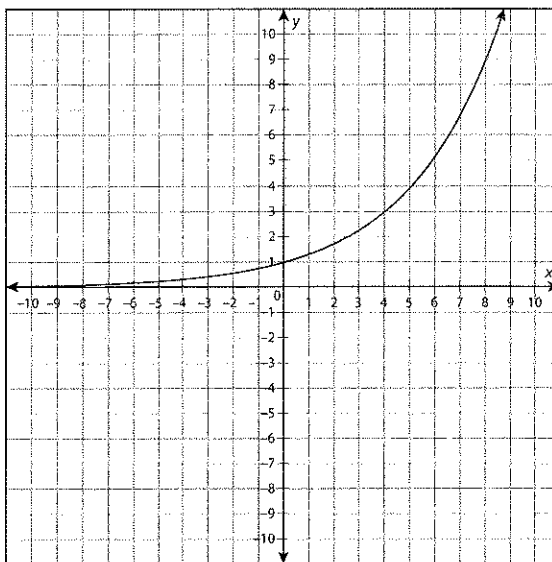
Lesson 6: Functions and Graphing

Assessment

- * 7. Given the graph of the linear function $f(x)$, what is $f(6)$?



- a. 5
b. 8
c. -4
d. 0
8. Given the graph of $f(x)$, what is $f(4)$?



- a. 3
b. 5
c. 2.25
d. 8

continued

Name: _____

Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 9: Sequences As Functions

Assessment

Progress Assessment

Circle the letter of the best answer.

1. What is the common difference of the sequence?

34, 25, 16, 7, ...

- a. 9
b. -9
c. 11
d. 34

2. What is the value of the eighth term in the sequence?

$\frac{1}{4}, \frac{5}{4}, \frac{9}{4}, \frac{13}{4}, \dots$

- a. 1
b. $\frac{29}{4}$
c. 29
d. $\frac{29}{64}$

- *3. The explicit formula for an arithmetic sequence is given as $a_n = x + (n-1)(4)$. The fifth term of the sequence is -27. What is the value of x ?

- a. -43
b. 43
c. -11
d. 11

- *4. The recursive formula for an arithmetic sequence is given as $a_n = a_{n-1} + 12$, with $a_1 = 9$. What are the first four terms of the sequence?

- a. 12, 21, 30, 39
b. 9, 21, 33, 45
c. 9, 84, 1008, 12,096
d. 1, 12, 144, 1728

- *5. The explicit formula for an arithmetic sequence is $a_n = 1.9 + (n-1)(2.1)$. What is the sixth term of the sequence?

- a. 14.5
b. 12.4
c. 16.6
d. 1.9

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Name: _____

Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

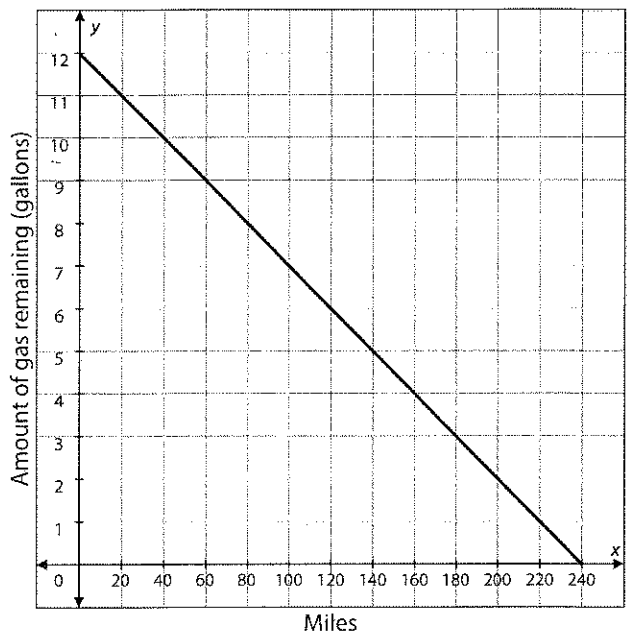
Lesson 10: Interpreting Linear Functions

Assessment

Progress Assessment

Circle the letter of the best answer.

- * 1. The following graph can be described as:



- a. having no maximum
- b. having no minimum
- c. having a maximum of 12 and a minimum of 0
- d. having a maximum of 240 and a minimum of 0

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Name: _____

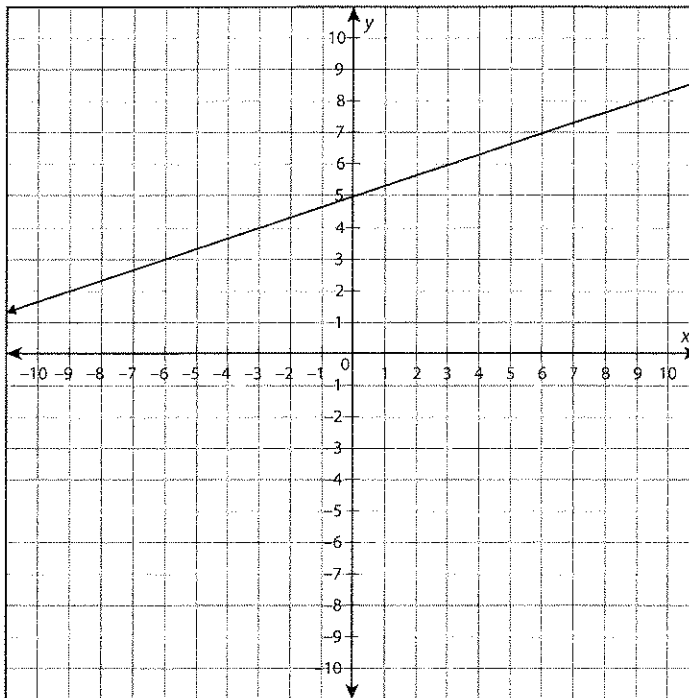
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

~~1~~ 2. The following graph can be described as:



- a. a positive function that is increasing
- b. a positive function that is decreasing
- c. a negative function that is increasing
- d. a negative function that is decreasing

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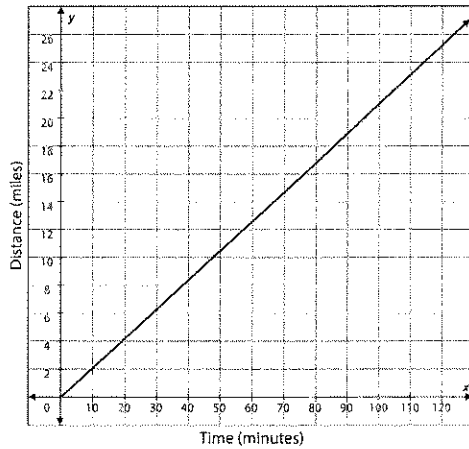
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Date: _____

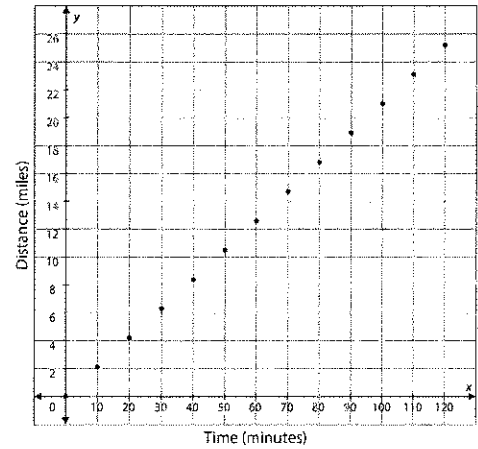
UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES**Lesson 10: Interpreting Linear Functions****Assessment**

3. Which of the following graphs best represents the number of miles biked after a period of time?

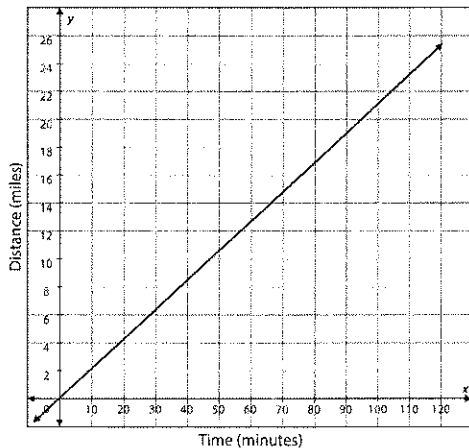
a.



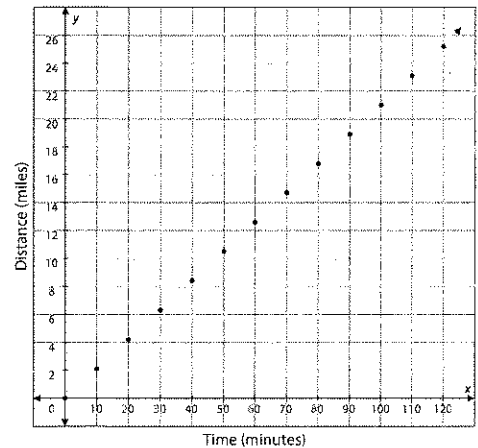
c.



b.



d.



4. Use the table to determine the rate of change for the interval $[10, 15]$.

Weeks (x)	Amount owed in dollars ($f(x)$)
0	1500
5	1350
10	1200
15	1050
20	900

a. $-\$150$ per weekc. $-\$30$ per weekb. $\$10$ per weekd. $\$15$ per week**continued**

Name: _____

Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

5. Use the table to determine the rate of change for the interval [2, 4].

Weeks (x)	Value of stock in dollars ($f(x)$)
0	603.90
1	576.45
2	549.00
3	521.55
4	494.10

- a. $-\$0.04$ per week
- b. $-\$27.45$ per week
- c. $\$27.45$ per week
- d. The rate of change cannot be determined.



6. What is the rate of change for the function $f(x) = 30x + 4$ over the interval [4, 8]?

- a. 15
- b. 30
- c. 4
- d. The rate of change cannot be determined.

7. What is the rate of change for the function $f(x) = -3.2x + 5$ over the interval [10, 20]?

- a. -3.2
- b. -32
- c. -0.3125
- d. The rate of change cannot be determined.

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Name: _____

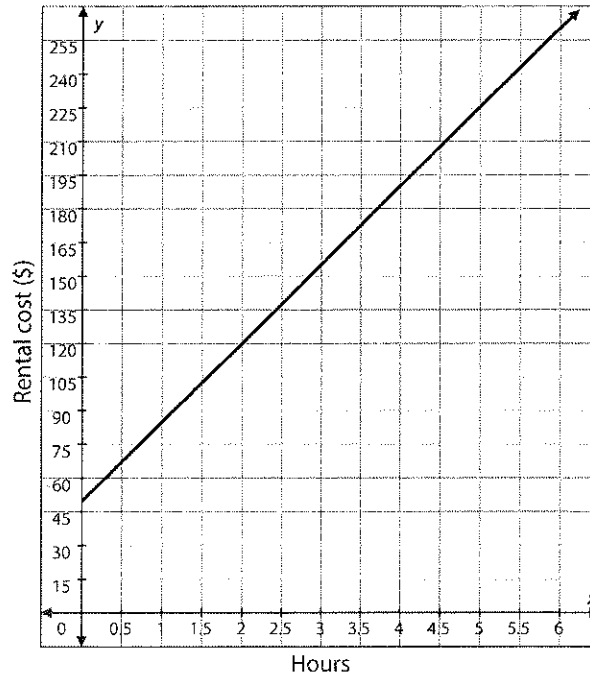
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

8. The following graph represents the cost to rent mini-bikes over a period of time. What is the approximate rate of change for the function for the interval $[0.5, 2.5]$?



- a. \$72.50 per hour
- b. \$0.03 per hour
- c. \$36.25 per hour
- d. The rate of change cannot be determined.

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Name: _____

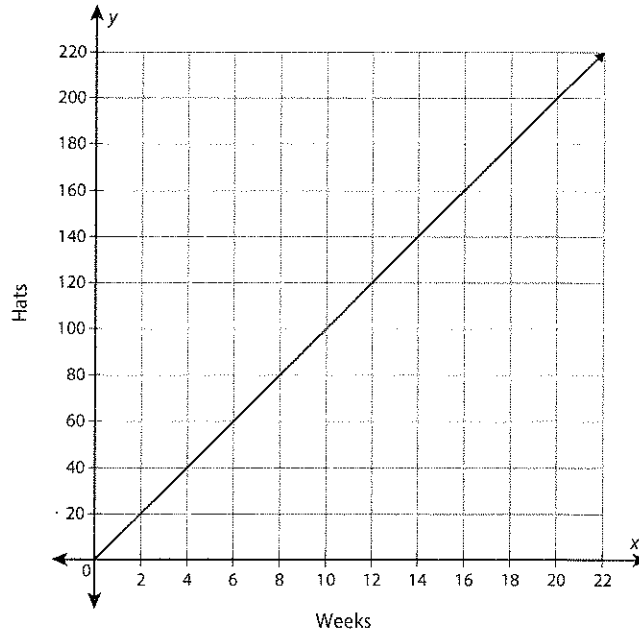
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

9. The following graph represents the number of hats Miguel makes per week. What is the approximate rate of change for the interval $[0, 4]$?



- a. 40 hats per week
- b. 10 hats per week
- c. 20 hats per week
- d. The rate of change cannot be determined.

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Name: _____

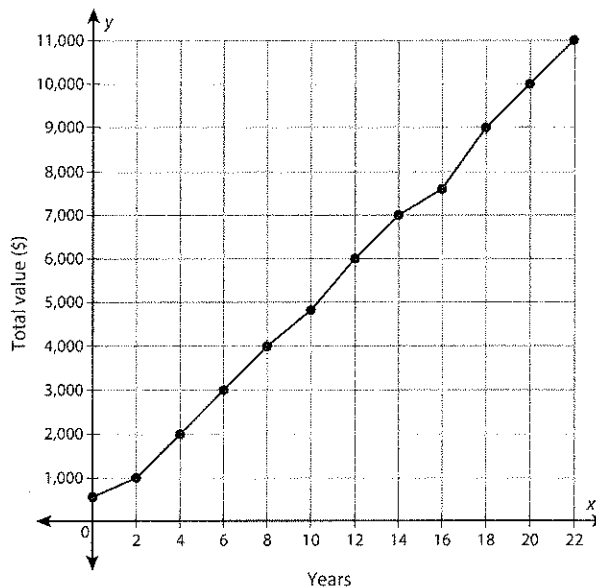
Date: _____

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

- *10. The following graph represents the total value of an investment over a period of time. What is the approximate rate of change for the function for the interval $[6, 12]$?



- a. \$500 per year
- b. -\$500 per year
- c. -\$3,000 per year
- d. The rate of change cannot be determined.

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Name: _____

Date: _____

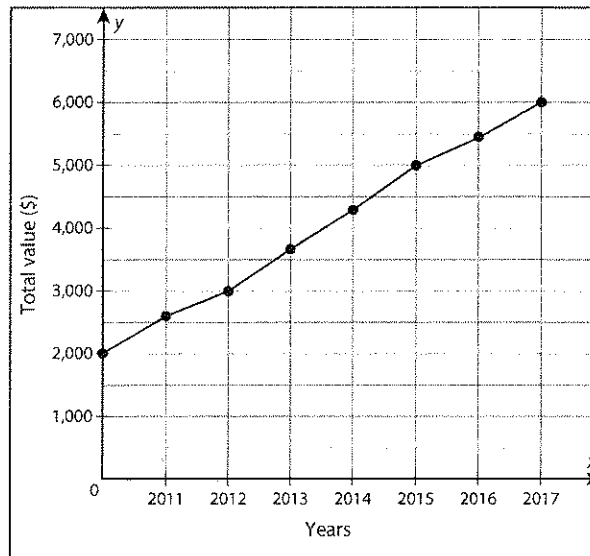
UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES

Lesson 10: Interpreting Linear Functions

Assessment

Use what you have learned about key features and rates of change to complete problem 11.

11. Nadiya invested \$2,000 in the stock market in 2010. She sold her stock in 2017 and deposited the money into a savings account. The following graph shows the changing value of her investment over the years.



- a. What are the key features of this function and what do they mean in terms of this scenario? Be sure to include the intercepts, if any, whether the function is increasing or decreasing, and whether the function is positive or negative. Also, include any relative minima and maxima.
- b. What is the domain of this function?