Name: Review Part 2 Date:

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

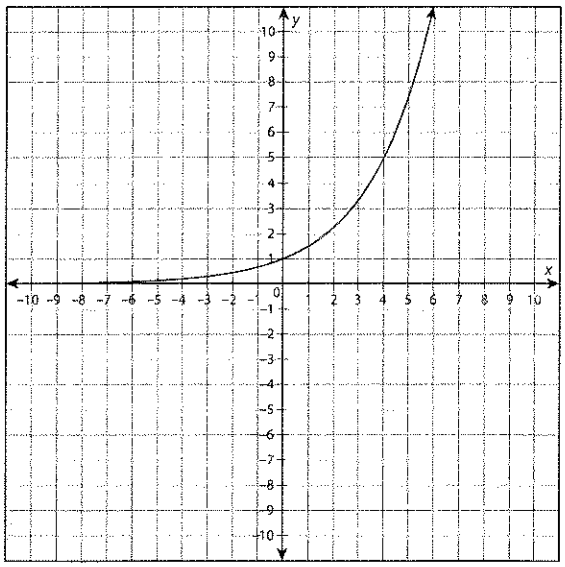
3. Which of the following relations is a function?
   a. {(2, 1), (1, 1), (4, 6), (5, 1)}
   b. {(9, 3), (6, 3), (5, 8), (5, 2)}
   c. {(1, 0), (1, 1), (0, 1), (0, 0)}
   d. {(1, 1), (1, 2), (2, 3), (3, 5)}

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

continued

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}

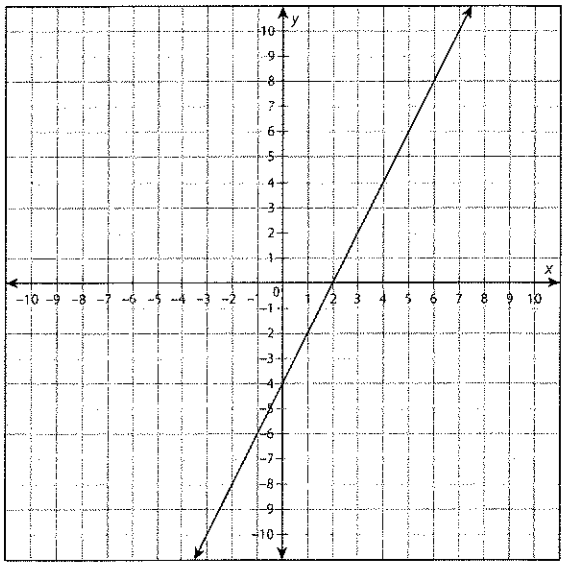
c. {11, 51, 101}

d. {0, 5, 10}

continued

Assessment

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



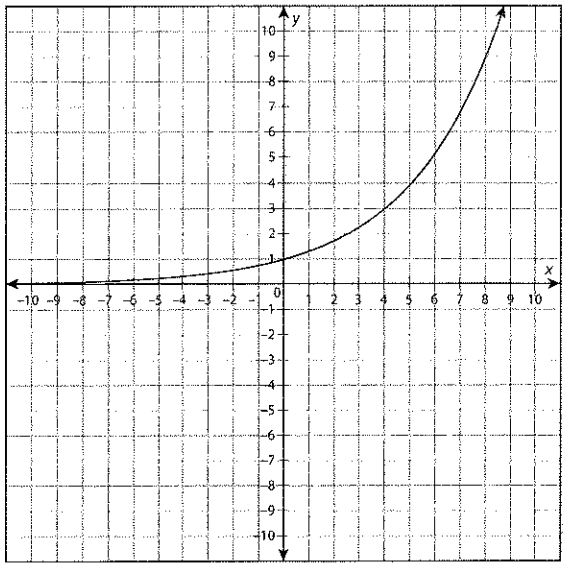
a. 5

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

Assessment

9. Fernando wants to build an opera house. After initially approaching 6 investors, Fernando begins systematically approaching 2 new investors every day. This situation is expressed by the function $f(x) = 2x + 6$. Which equation represents the number of investors Fernando will have approached after 10 days?

   a. $f(10) = 6$
   b. $f(10) = 26$
   c. $f(26) = 10$
   d. $f(6) = 10$

10. The contents of the fuel tank of Sierra's car can be modeled by the function $g(x) = -0.04x + 15$, where x represents the number of miles driven and $g(x)$ represents the number of gallons of gas in the tank. Sierra started her trip with a full tank of gas and traveled 200 miles. Which equation represents the amount of gas that Sierra had left in her car's fuel tank at the end of the trip?

   a. $g(200) = 7$
   b. $g(200) = 8$
   c. $g(7) = 200$
   d. $g(8) = 200$

Read the scenario and use the information to complete the problem that follows.

11. Luisa is saving money to buy a new smartphone that costs $430. She started with $150 and every month she saves $20. Her savings can be modeled by the function $s(x) = 20x + 150$, where x represents the number of months she saves and $s(x)$ represents how much she has saved.

   a. What are the domain and range of the function?

   b. Evaluate the function for $x = 4$, 8, and 12, then represent these results graphically.

   c. Interpret part b in the context of the problem.

   d. Write a statement using function notation that shows when Luisa will reach her goal. Then use words to describe the symbolic statement.

Progress Assessment

Circle the letter of the best answer.

1. What is the common difference of the sequence?

   34, 25, 16, 7, ...

   a. 9
   c. 11
   b. –9
   d. 34

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

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

   a. 1
   c. 29
   b. $\frac{29}{4}$
   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
   c. –11
   b. 43
   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
   c. 9, 84, 1008, 12,096
   b. 9, 21, 33, 45
   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
   c. 16.6
   b. 12.4
   d. 1.9

continued

6. Identify the pattern in the sequence of numbers and choose the missing number in the sequence.

   3, 11, 19, ___, 35, 43

   a. 22
   c. 27
   b. 24
   d. 30

7. A sequence is generated by the formula $a_n = 2n + 3$. What is the value of the tenth term?

   a. 13
   c. 32
   b. 25
   d. 23

8. A sequence is generated by the formula $a_n = 5n - 2$. What is the value of the ninth term?

   a. 43
   c. 38
   b. 53
   d. 48

9. If $a_n = a_{n-1} + 5$ and $a_3 = 9$, what is a_5?

   a. 29
   c. 24
   b. 19
   d. 14

10. If $a_n = a_{n-1} + 7$ and $a_1 = 10$, what is a_4?

    a. 10
    c. 31
    b. 16
    d. 24

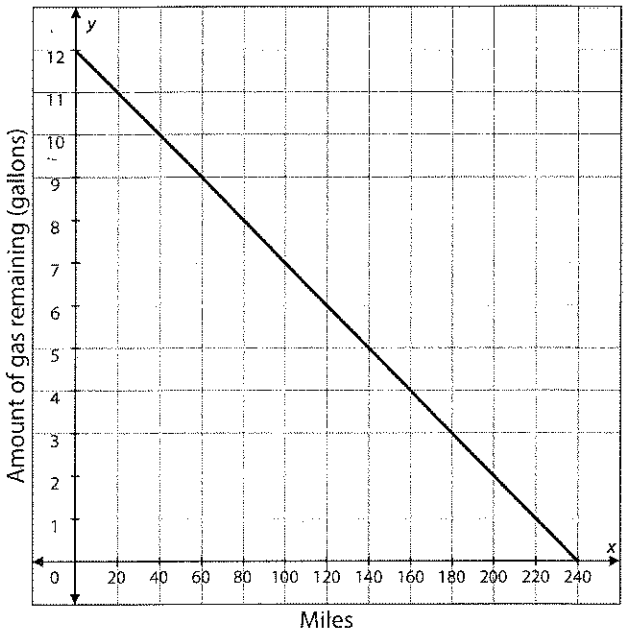
Use what you know about sequences to solve the problem.

11. Shelly is on a nature hike. She starts out in a valley and climbs up a hill, stopping at regular intervals to take pictures. The elevation of the land in feet below or above sea level at each place Shelly stops follows the function $a_n = a_{n-1} + 5$. The first place Shelly stops to take a picture is 4 feet below sea level, so $a_1 = -4$. What is the elevation of the sixth place Shelly stops?

Progress Assessment

Circle the letter of the best answer.

1. The following graph can be described as:



a. having no maximum

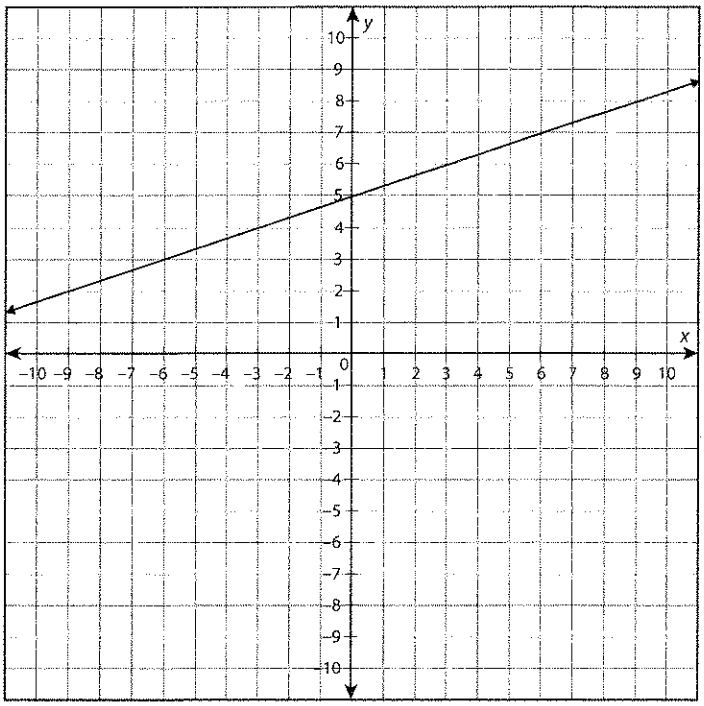
b. having no minimum

c. having a maximum of 12 and a minimum of 0

d. having a maximum of 240 and a minimum of 0

continued

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

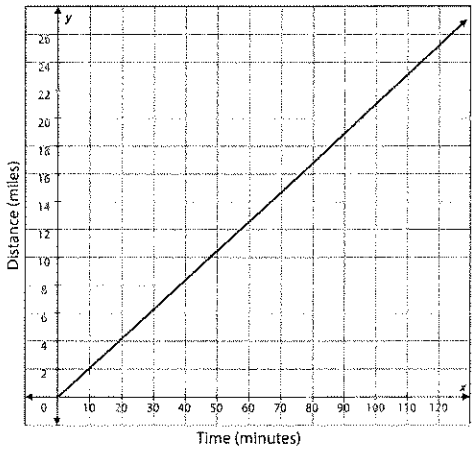
d. a negative function that is decreasing

continued

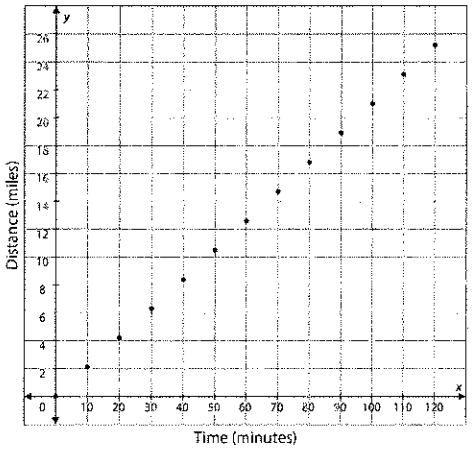
Assessment

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

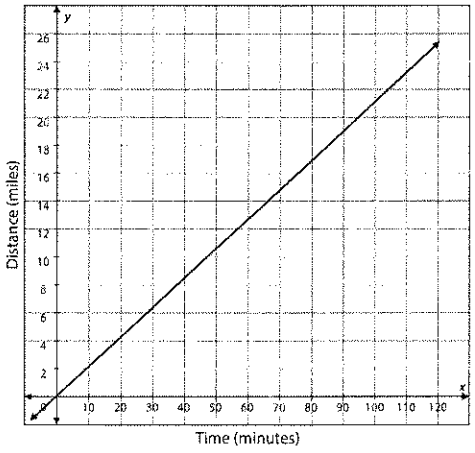
a.



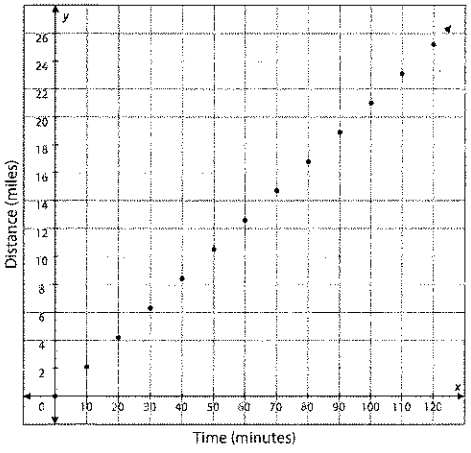
c.



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 week

b. $10 per week

c. –$30 per week

d. $15 per week

continued

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

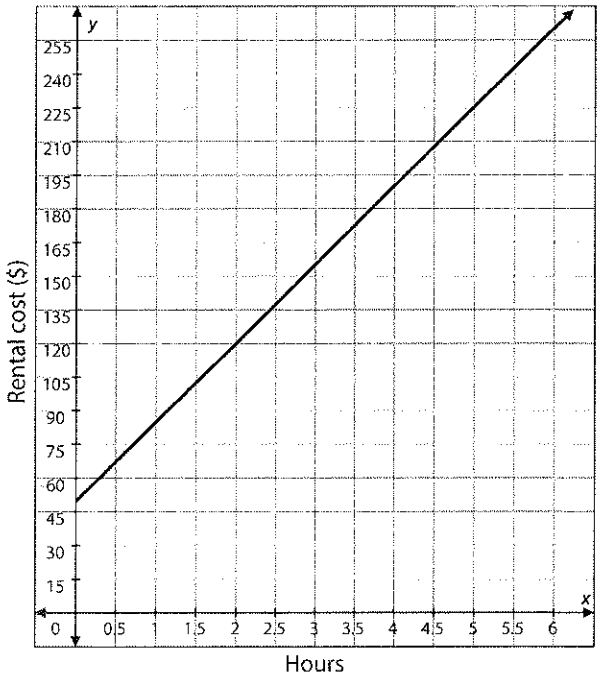
c. –0.3125

d. The rate of change cannot be determined.

continued

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

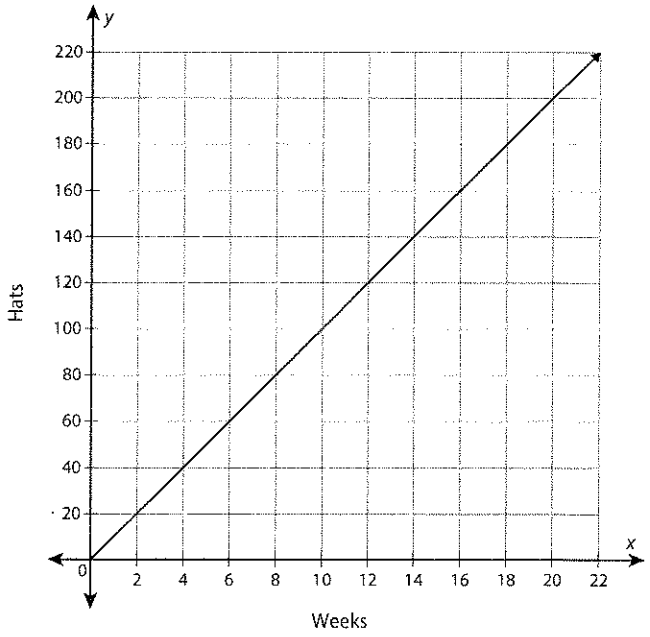
b. $0.03 per hour

c. $36.25 per hour

d. The rate of change cannot be determined.

continued

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

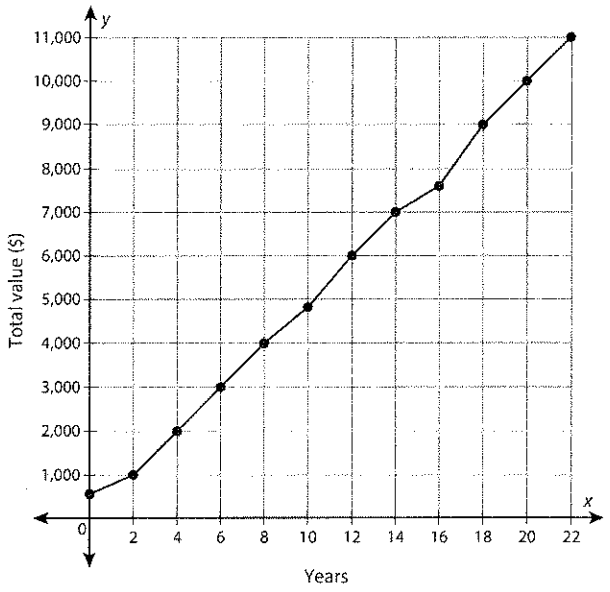
c. 20 hats per week

d. The rate of change cannot be determined.

continued

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

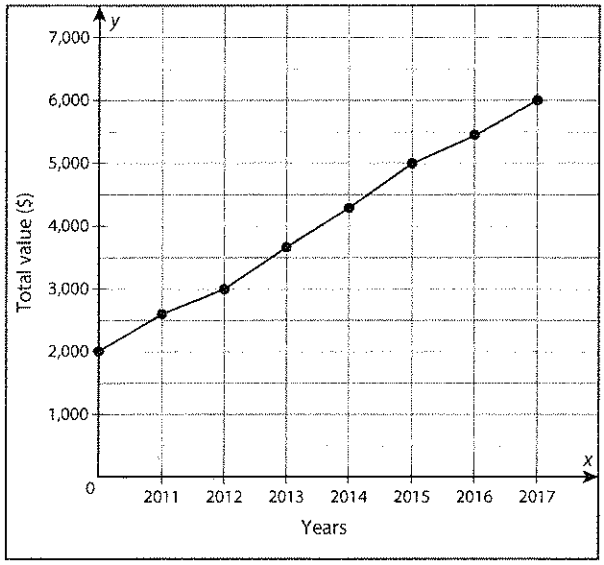
d. The rate of change cannot be determined.

continued

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?