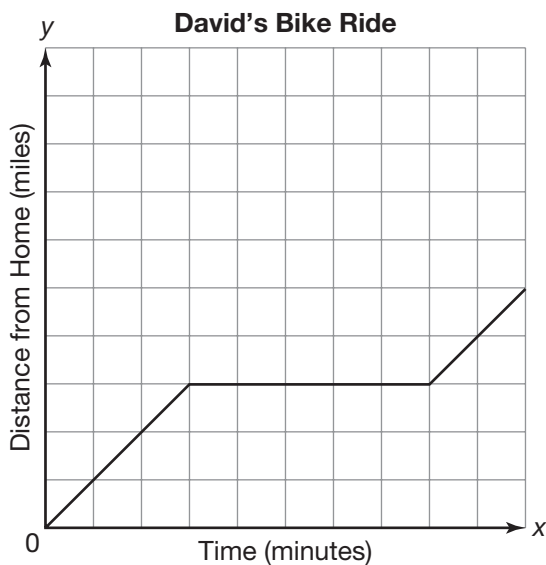


Pre-Test

1

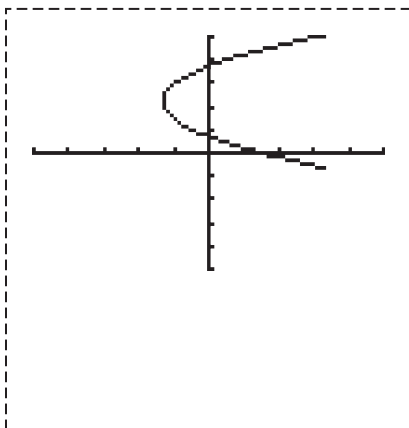
Name _____ Date _____

1. Hector knows there is a relationship between the number of cars he washes and the time it takes him to wash those cars. Identify the independent quantity and the dependent quantity in the problem situation.
2. David rode his bike to the park. After staying at the park for a few minutes, he then continued his ride to the grocery store. The graph shows this relationship. In the graph, what is the independent quantity and what is the dependent quantity?

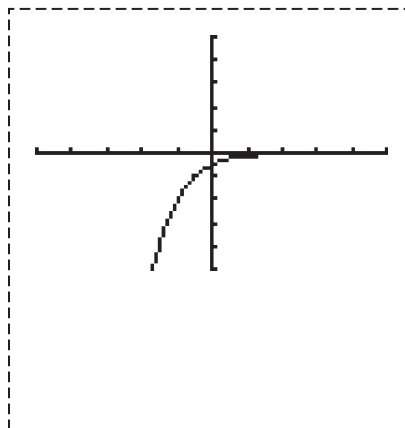


3. Tell whether each graph represents a function.

a.



b.



4. Classify each function as increasing, decreasing, or constant.

a. $f(x) = 3x$

b. $f(x) = -2^x$, where x is an integer

c. $f(x) = 0.9^x$

d. $f(x) = \frac{1}{5}$

5. Classify each function as a linear function, a linear absolute value function, a quadratic function, or an exponential function.

a. $f(x) = -7x$

b. $f(x) = 3x^2$

c. $f(x) = -4^x$

d. $f(x) = 8$

6. Determine whether each function has an absolute maximum or absolute minimum. If the graph has neither an absolute maximum nor an absolute minimum, write *none*.

a. $f(x) = -4|x|$

b. $f(x) = 2x + 5$

c. $f(x) = 5x^2 - 1$

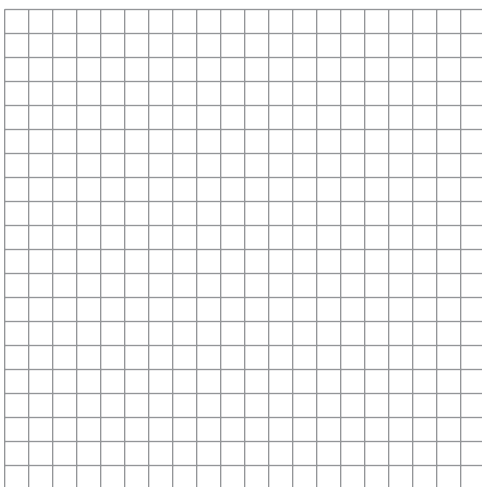
d. $f(x) = 3^x$

Name _____ Date _____

7. Create an equation and sketch a graph for each set of given characteristics.

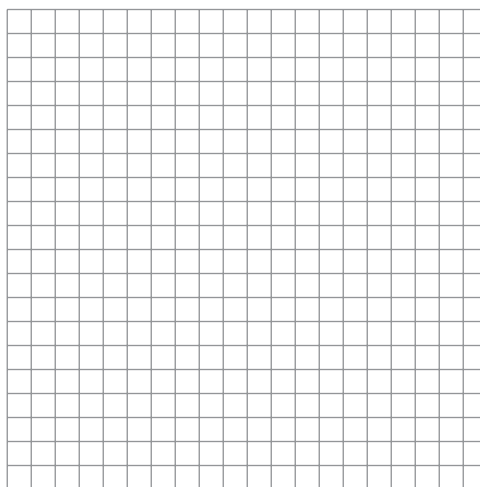
a.

- is a function
- is quadratic
- is continuous
- has an absolute minimum



b.

- is a function
- is a linear absolute value function
- is discrete
- has an absolute maximum

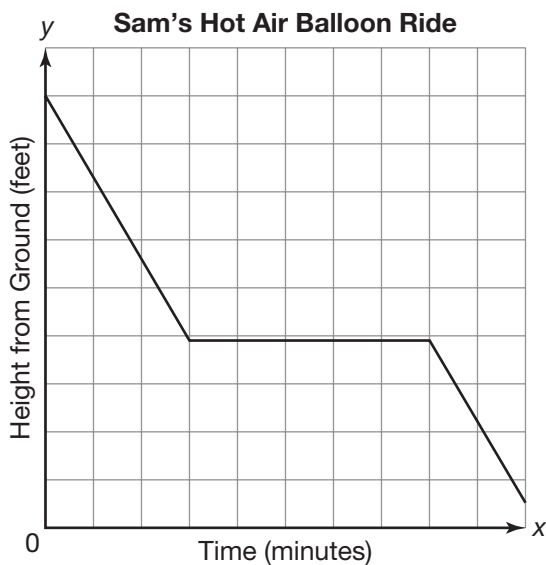


Post-Test

1

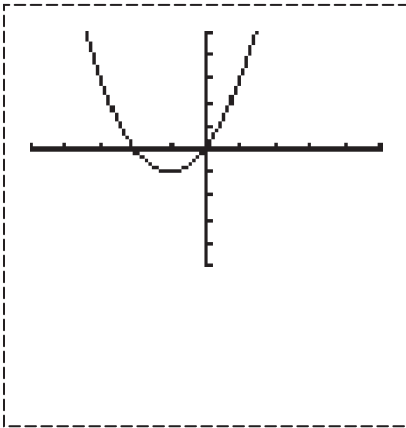
Name _____ Date _____

1. Angela knows there is a relationship between the area of the squares she draws and the side length of each square. Identify the independent quantity and the dependent quantity in the problem situation.
2. Sam rode in a hot air balloon. After the balloon began its initial descent, it stayed in the air at a constant height for a few minutes, then it continued its descent to the ground. The graph shows this relationship. In the graph, what is the independent quantity and what is the dependent quantity?

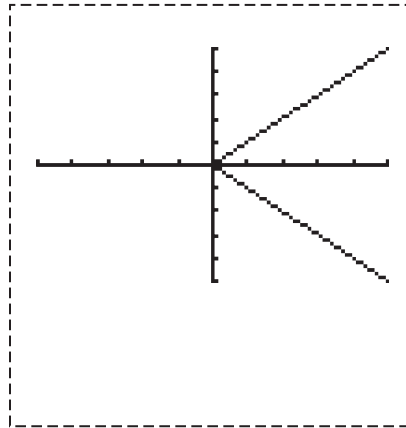


3. Tell whether each graph represents a function.

a.



b.



4. Classify each function as increasing, decreasing, or constant.

a. $f(x) = 0.1$

b. $f(x) = \frac{2}{5}x$, where x is an integer

c. $f(x) = -4x$

d. $f(x) = 7^x$

5. Classify each function as a linear function, a linear absolute value function, a quadratic function, or an exponential function.

a. $f(x) = |x - 2|$

b. $f(x) = 0$

c. $f(x) = 0.5^x$

d. $f(x) = 8(x - 2)^2$

6. Determine whether each function has an absolute maximum or absolute minimum. If the graph has neither an absolute maximum nor an absolute minimum, write *none*.

a. $f(x) = -(x + 5)^2 - 8$

b. $f(x) = x$

c. $f(x) = 3x + 5$

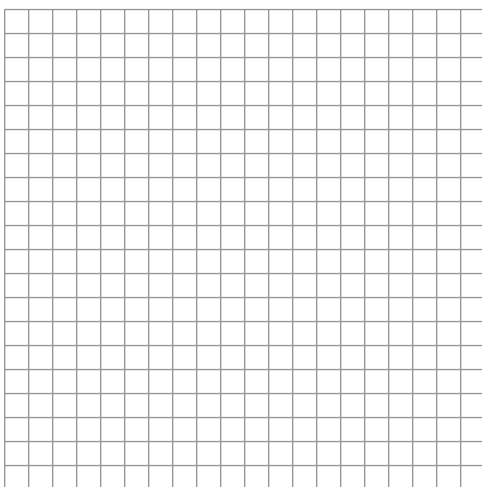
d. $f(x) = 2|x + 1| - 1$

Name _____ Date _____

7. Create an equation and sketch a graph for each set of given characteristics.

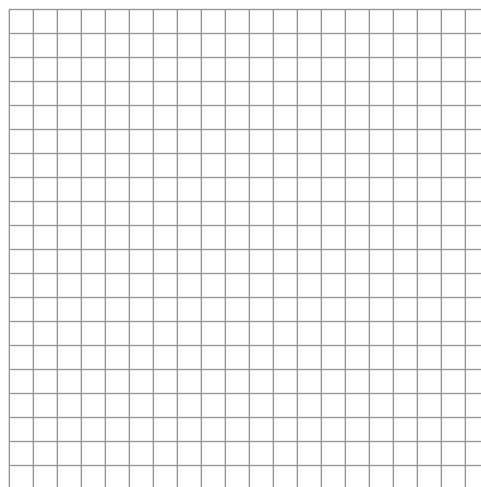
a.

- is a function
- is linear
- is discrete
- is increasing



b.

- is a function
- is exponential
- is continuous
- is decreasing

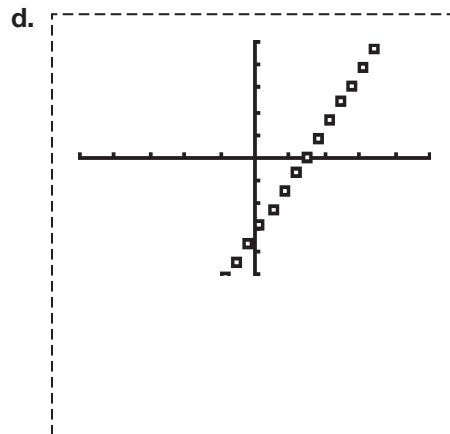
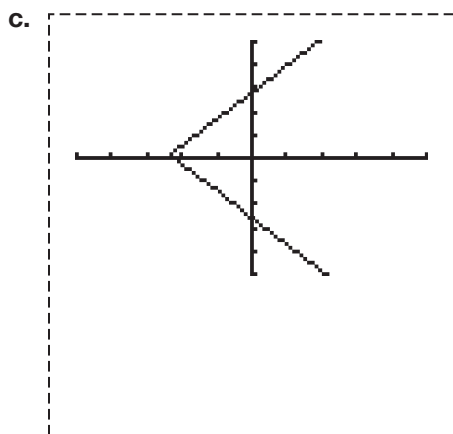
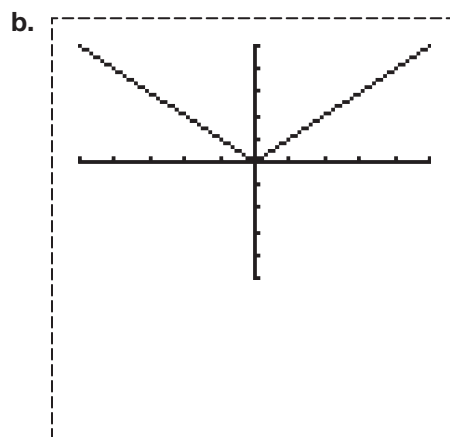
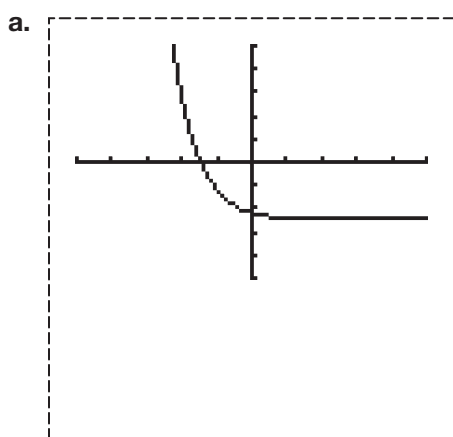


End of Chapter Test

1

Name _____ Date _____

1. Brie knows there is a relationship between the grades on her math tests and the time she spends studying for those tests. Identify the independent quantity and the dependent quantity in this problem situation.
2. Tell whether each graph represents a function.



3. Identify the function family of a graph that is made up of two straight lines, has an absolute maximum or absolute minimum, and has symmetry.

4. Classify each function as increasing, decreasing, or constant.

a. $f(x) = -\frac{1}{2}x$

b. $f(x) = -5$

c. $f(x) = 4^x$

d. $f(x) = 6x$, where x is an integer

5. Classify each function as a linear function, a linear absolute value function, a quadratic function, or an exponential function.

a. $f(x) = |x + 3|$

b. $f(x) = 2x - 1$

c. $f(x) = 5(x - 2)^2 + 3$

d. $f(x) = 3^x + 1$

6. Determine whether each function has an absolute maximum or absolute minimum. If the graph has neither an absolute maximum nor an absolute minimum, write *none*.

a. $f(x) = -3x^2$

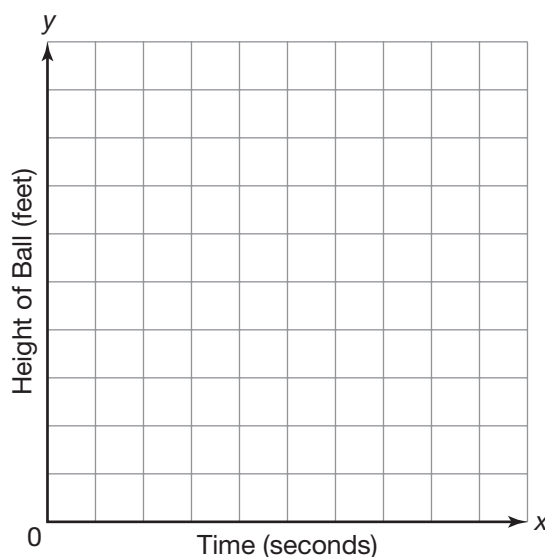
b. $f(x) = 0.2^x$

c. $f(x) = x - 3$

d. $f(x) = |x| + 2$

7. Sketch a graph of the given situation.

Evan is the quarterback for his school's football team. In one of the pass routes he throws, the ball leaves his hand and is in the air for a few seconds. The ball reaches a maximum height of 12 feet off the ground. Then the ball lands in the receiver's arms.



Name _____ Date _____

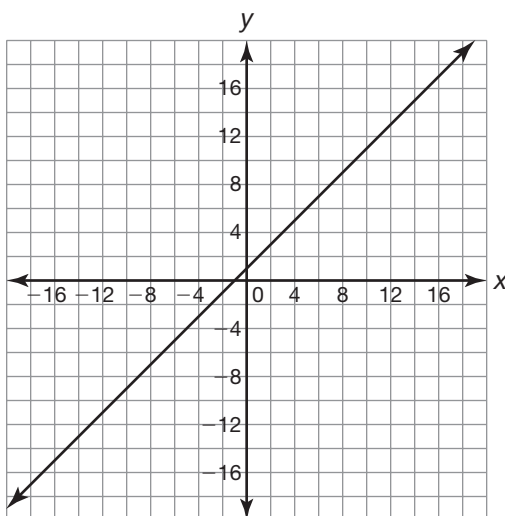
8. Match each function to its graph.

a. $f(x) = -x^2 + 4$

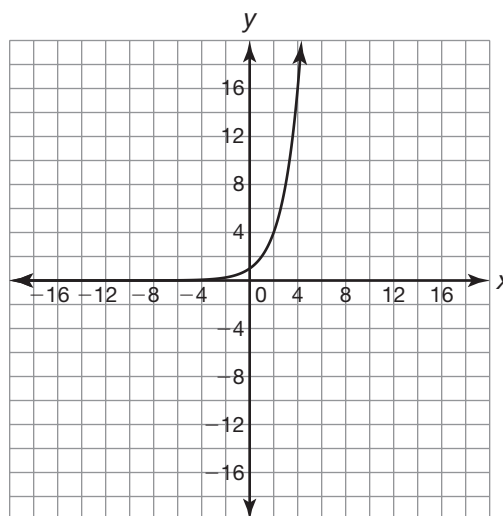
b. $f(x) = 2^x$

c. $f(x) = x + 1$

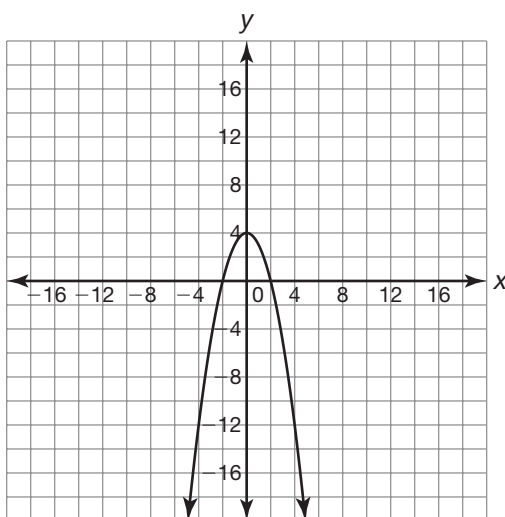
d. $f(x) = |x - 1|$



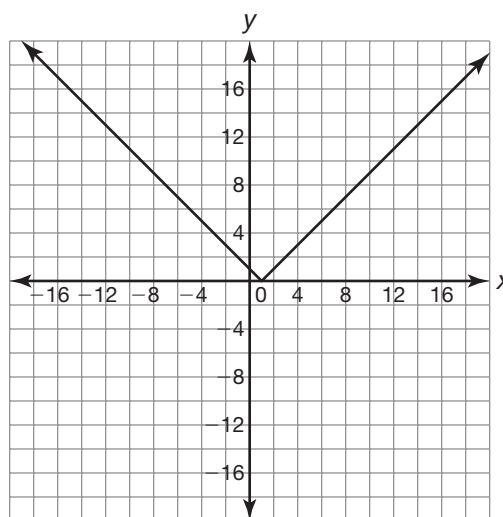
Graph A



Graph B



Graph C

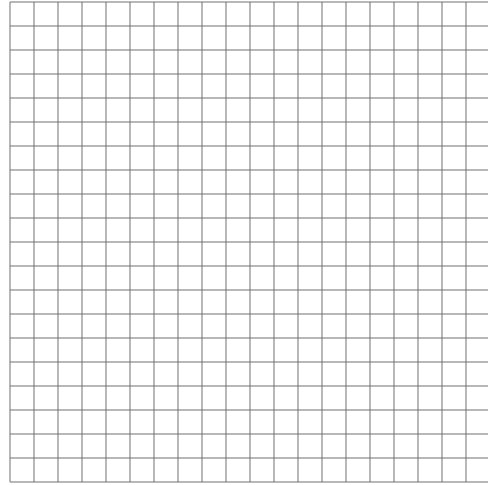


Graph D

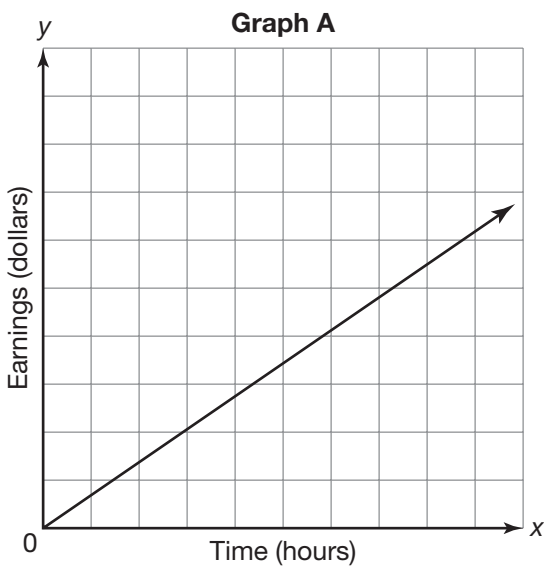
9. Write an equation and sketch a graph that:

- is linear,
- is continuous,
- is decreasing, and
- is a function.

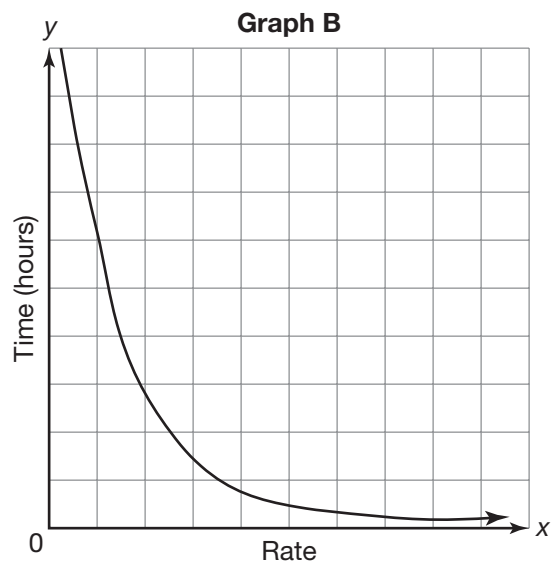
Equation: _____



10. Write a scenario to match each graph.



Graph A:

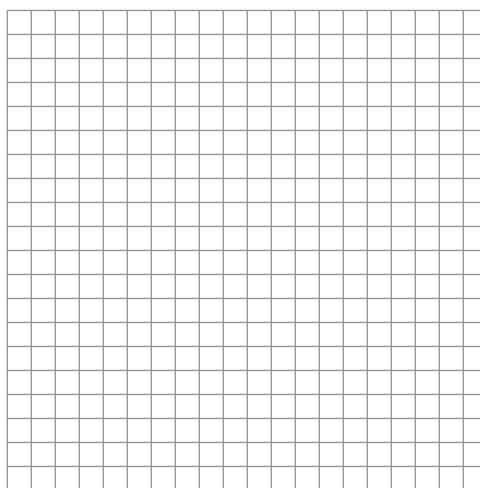


Graph B:

Name _____ Date _____

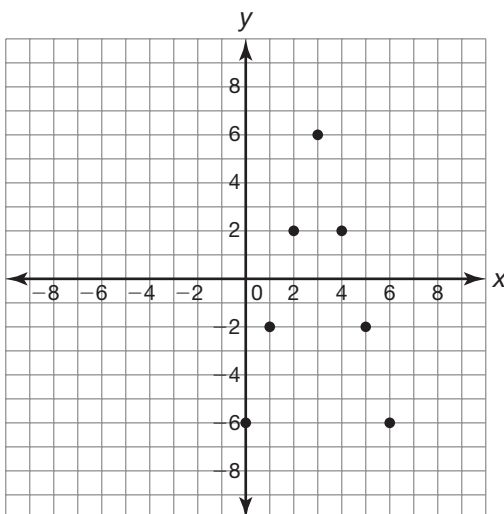
11. Sketch a graph with the given characteristics.

- is a function
- is quadratic
- is discrete
- has an absolute maximum



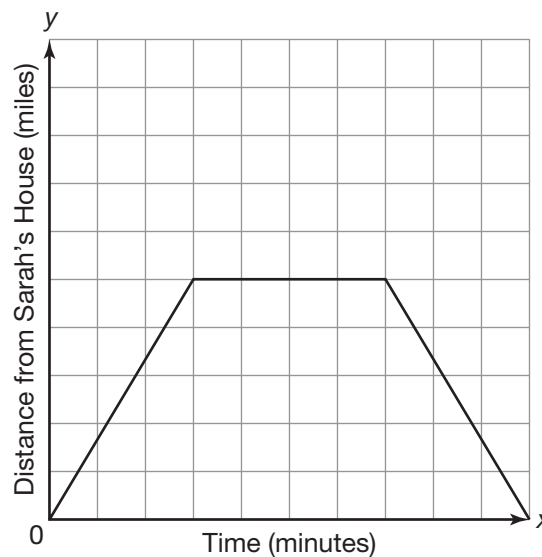
Name _____ Date _____

1. Which characteristics best describe the graph?



- a. is a function
 - is discrete
 - is exponential
 - has an absolute minimum
- b. is a function
 - is linear
 - is continuous
 - has an absolute minimum
- c. is a function
 - is a linear absolute value function
 - is discrete
 - has an absolute maximum
- d. is a function
 - is a linear absolute value function
 - is continuous
 - has an absolute maximum

2. Which is a linear function?
- a. $f(x) = -x + 2$
 - b. $f(x) = -x^2$
 - c. $f(x) = -2^x$
 - d. $f(x) = |-2x|$
3. What is the classification of the function $f(x) = 5^x - 1$?
- a. linear absolute value function
 - b. exponential function
 - c. quadratic function
 - d. linear function
4. Grissom draws different-sized spheres in a notebook. He knows there is a relationship between the volume of the sphere and the length of its diameter. What is the independent quantity in the situation?
- a. cost of Grissom's notebook
 - b. length of diameter
 - c. volume of sphere
 - d. number of spheres Grissom draws
5. Sarah drove to the grocery store. She was at the grocery store for several minutes. Then Sarah drove back to her house. The graph shows this relationship. In the graph, what is the dependent quantity?



- a. grocery store
- b. Sarah's house
- c. time, in minutes
- d. distance from Sarah's house, in miles

Name _____ Date _____

6. Which is a quadratic function?

a. $f(x) = -3$

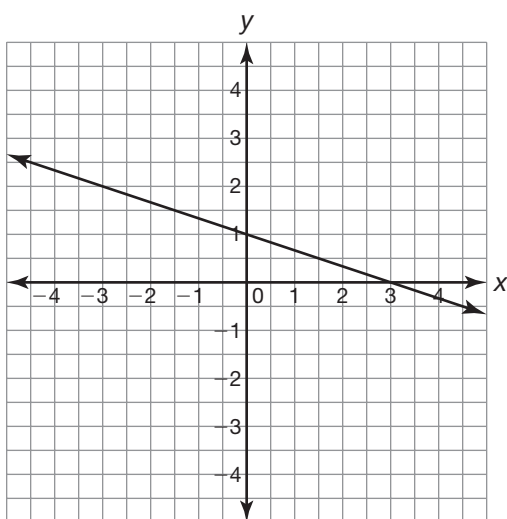
b. $f(x) = (x - 1)^2$

c. $f(x) = \left(\frac{1}{2}\right)^x$

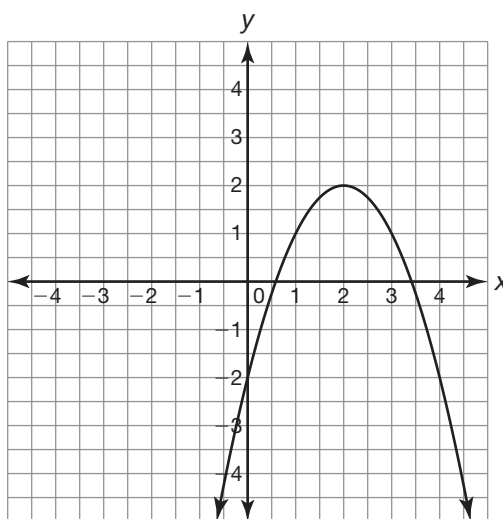
d. $f(x) = |-x| - 10$

7. Which graph does not represent a function?

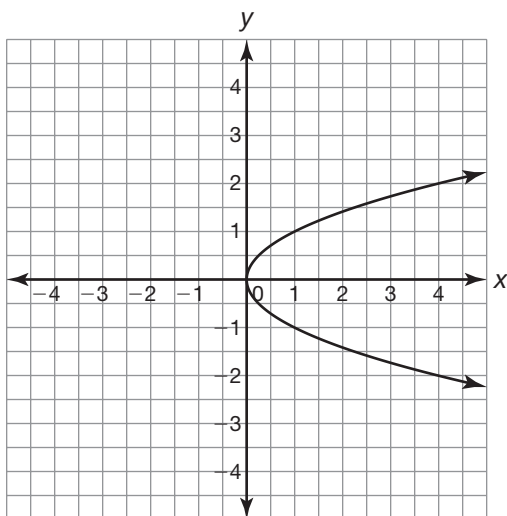
a.



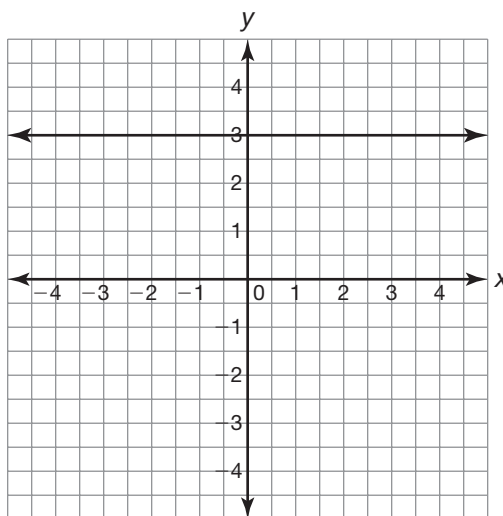
b.



c.



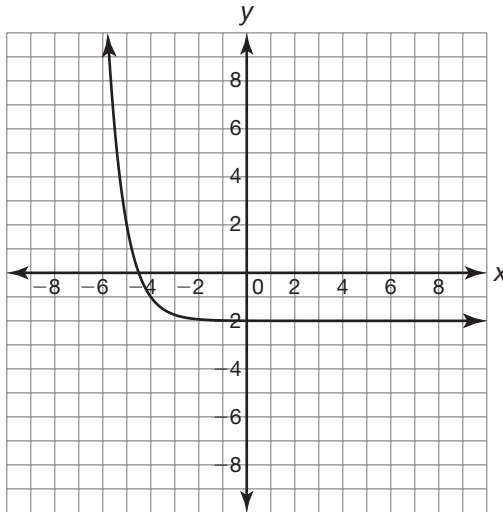
d.



8. Which of the following descriptions is *not* true of an exponential function?
- a. It has an absolute minimum or maximum.
 - b. It increases or decreases over the entire domain.
 - c. Its graph is a smooth curve.
 - d. It can be discrete or continuous.
9. Which best describes the behavior of the function $f(x) = \frac{2}{3}x - 2$?
- a. It is constant.
 - b. It is increasing.
 - c. It is decreasing.
 - d. It is both increasing and decreasing.
10. Kathy has different-sized soup cans that are in the shape of a cylinder. She knows there is a relationship between the surface area of each can and the length of its radius. What is the dependent quantity in the situation?
- a. volume of soup can
 - b. height of cylinder
 - c. length of radius
 - d. surface area of soup can
11. Which equation does not represent a function?
- a. $y = -6^x$
 - b. $y = x^2 - 3$
 - c. $x = -6$
 - d. $y = -|9x| + 2$
12. Which statement about the function $f(x) = -|x + 3|$ is true?
- a. It has an absolute minimum.
 - b. It has an absolute maximum.
 - c. It has both an absolute minimum and an absolute maximum.
 - d. It has neither an absolute minimum nor an absolute maximum.
13. Which is an exponential function?
- a. $f(x) = 2x + 3$
 - b. $f(x) = x^2 + 4$
 - c. $f(x) = -8^x$
 - d. $f(x) = -|x + 9|$

Name _____ Date _____

14. Which characteristics best describe the graph?



- | | |
|--|--|
| <p>a. is a function
is exponential
is discrete
is increasing</p> | <p>b. is a function
is exponential
is continuous
is decreasing</p> |
| <p>c. is a function
is a linear absolute value function
is discrete
is increasing</p> | <p>d. is a function
is a linear absolute value function
is continuous
is decreasing</p> |

15. Which describes the behavior of the function $f(x) = -\frac{3}{5}$?

- a.** It is constant.
- b.** It is increasing.
- c.** It is decreasing.
- d.** It is both increasing and decreasing.

16. Which statement about the function $f(x) = (x + 1)^2 - 1$ is true?

- a.** It has an absolute minimum.
- b.** It has an absolute maximum.
- c.** It has both an absolute minimum and an absolute maximum.
- d.** It has an neither an absolute minimum nor an absolute maximum.

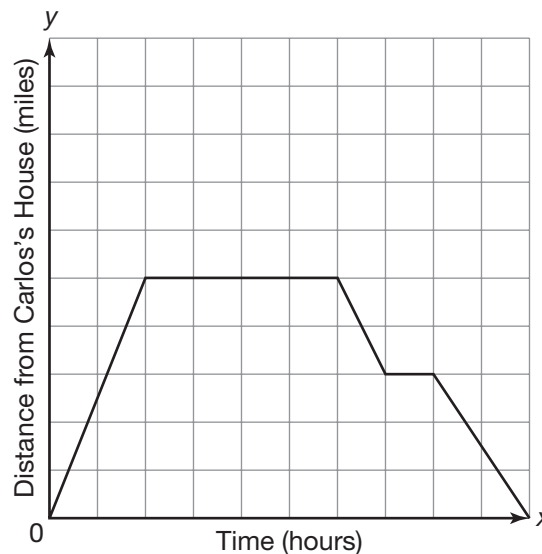
17. Which is a constant function?

- a. $f(x) = -1$
- b. $f(x) = 3x^2$
- c. $f(x) = 5x$
- d. $f(x) = |x - 8|$

18. What is the classification of the function $f(x) = -(x + 1)^2 + 7$?

- a. absolute value function
- b. exponential function
- c. quadratic function
- d. linear function

19. Carlos walked from his house to school. He was at school for several hours. Then on his way home, Carlos walked to the library. He was at the library for an hour. Then he walked back to his house. The graph shows this relationship. In the graph, what is the independent quantity?

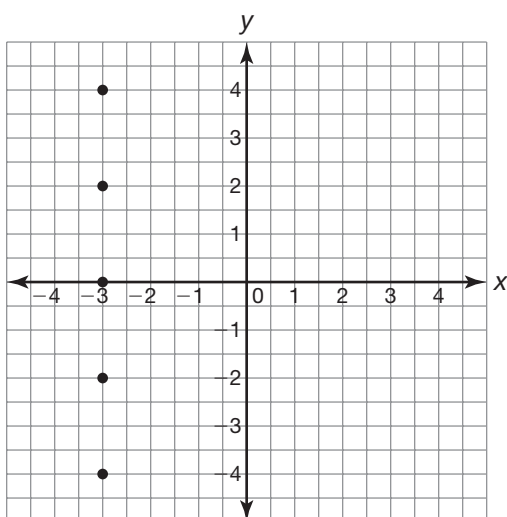


- a. name of his school
- b. section of books at the library
- c. time, in hours
- d. distance from Carlos's house, in miles

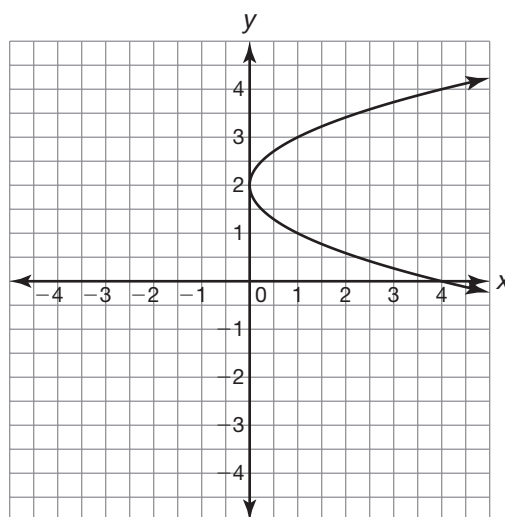
Name _____ Date _____

20. Which graph represents a function?

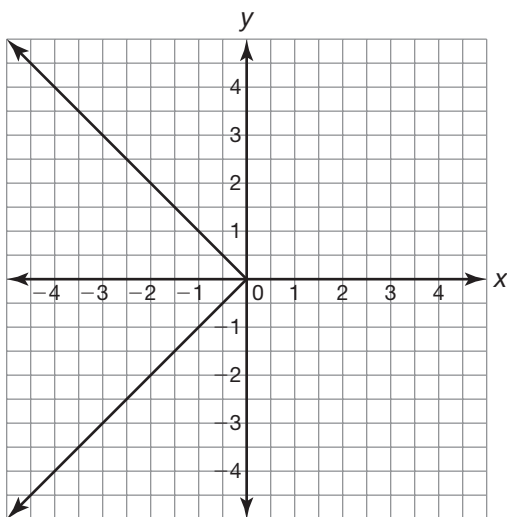
a.



b.



c.



d.

