

Practice Functions Test

1. Which relation below is a function?

A.

x	y
0	-2
1	-3
0	-4
2	-5

C.

x	y
0	0
1	1
0	8
2	27

B.

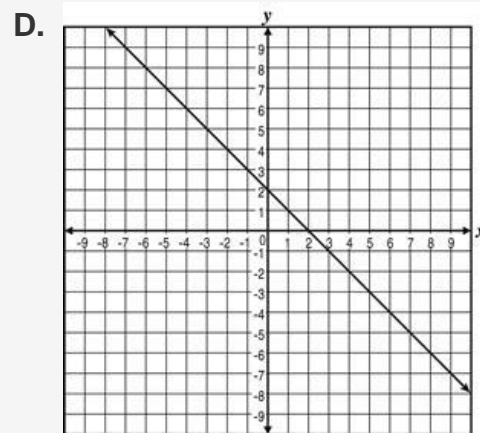
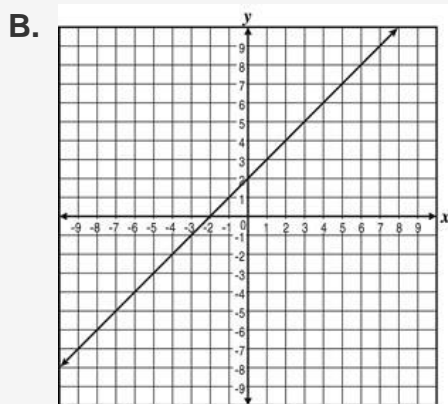
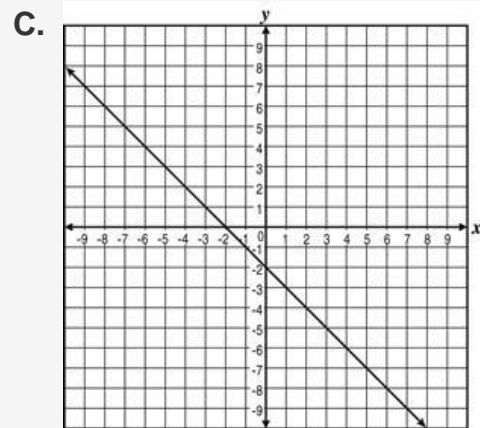
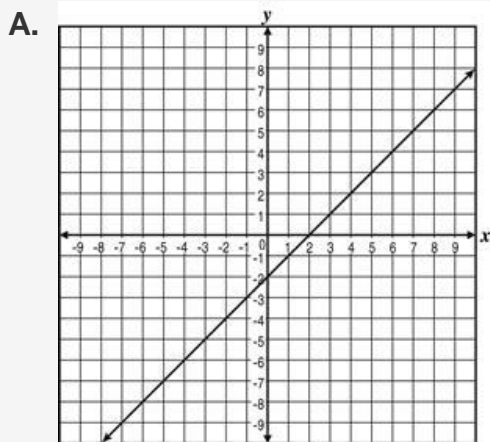
x	y
0	2
1	3
0	4
2	5

D.

x	y
0	0
1	-4
2	8
3	4

2. Which linear graph represents the values in the table below?

x	y
-2	0
0	-2
2	-4



3. Which chart represents a function?

A.

x	y
0	0
1	-1
1	1
4	2

C.

x	y
-2	2
2	-3
2	2
3	-3

B.

x	y
2	6
4	10
6	14
8	18

D.

x	y
3	2
3	-2
5	24
-5	24

4. In which table is y *not* a function of x ?

A.

x	y
-1	4
-2	7
-3	12
-4	19

B.

x	y
-5	11
-2	2
1	-7
5	19

C.

x	y
-1	1
-1	-1
0	0
4	2

D.

x	y
-4	13
-2	1
2	1
4	13

5. Which of the following equations represents a function?

A. $x = 2$

B. $y^2 = x + 2$

C. $y^2 = x^4 + 2$

D. $y = x^2$

6. Which of the following relations is not a function?
- A. $\{(0, 1), (1, 1), (2, 1), (3, 1)\}$ C. $\{(0, 0), (3, 4), (5, 6), (8, 9)\}$
- B. $\{(0, 1), (0, 2), (0, 3), (0, 4)\}$ D. $\{(0, 0), (2, 2), (4, 4), (6, 6)\}$
7. Ronny's Carpet Cleaning uses the equation $y = 15x + \$22.50$ to calculate the total cost, y , to clean carpet for x number of hours. Juan's Carpet Cleaning uses the table below to calculate the total cost.

Juan's Carpet Cleaning

Number of Hours (x)	Total Cost (y)
1	\$38.50
3	\$65.50
6	\$106.00
8	\$133.00

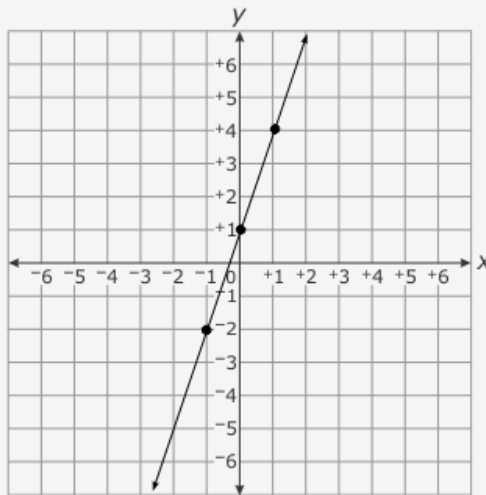
- Which company charges less per hour, and by how much?
- A. Ronny's Carpet Cleaning charges \$2.50 less per hour.
- B. Juan's Carpet Cleaning charges \$2.50 less per hour.
- C. Ronny's Carpet Cleaning charges \$1.50 less per hour.
- D.

8. The table and graph below represent two different functions.

Function 1

x	y
3	-12
1	-2
0	3

Function 2



What is the difference between the slopes of the two functions?

A. 4

B. 3

C. 2

9. Jenna charges \$25 to babysit one child and \$5 for each additional child. Tyler's babysitting rates are shown in the table below.

Number of Children	Cost to Babysit
2	\$36
3	\$42
4	\$48

How much more does Tyler charge to babysit one child than Jenna charges to babysit one child?

A. \$4

B. \$5

C. \$6

10. Art classes at Studio A cost \$15 per class, plus a one-time fee of \$20. The following functions represent the total cost, y , of taking x art classes at four other studios. Which function represents the studio with a cost per class greater than Studio A?

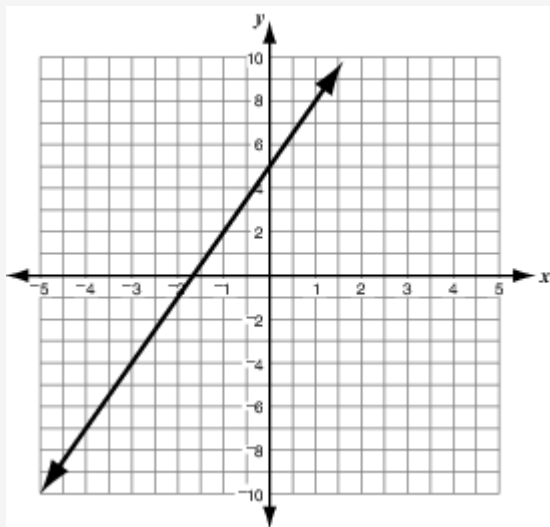
A. $y = 12x + 25$

C. $y = 15x + 14$

B. $y = 14x + 11$

D. $y = 18x + 12$

11. The graph of function 1 and the equation of function 2 are shown below.



Function 1:

Function 2: $y = -4x - 1$

Which statement is **true** of function 1 and function 2?

- A. Function 2 has a greater rate of change because the slope of function 1 is $^{-1}$ and the slope of function 2 is 5.
- B. Function 1 has a greater rate of change because the slope of function 1 is 5 and the slope of function 2 is $^{-1}$.
- C. Function 2 has a greater rate of change because the slope of function 1 is $^{-4}$ and the slope of function 2 is 3.
- D. Function 1 has a greater rate of change because the slope of function 1 is 3 and the slope of function 2 is $^{-4}$.

12. Which equation represents a linear function?

A. $y = \frac{1}{x}$

C. $y = \frac{1}{x^2}$

B. $y = x$

D. $y = x^2$

13. If the coordinates from each table are graphed, which will form a linear pattern?

A.

x	y
-1	2
0	4
1	8
2	16

C.

x	y
3	7
5	8
6	10
8	13

B.

x	y
2	2
3	1
4	2
5	3

D.

x	y
2	5
4	6
6	7
8	8

14. Which equation represents a linear function?

A. $y = -3x^2 + 9$

C. $y = 3x + 9$

B. $y = (3x^2)9$

D. $y = \frac{3}{x} + 9$

15. In which table is y a nonlinear function of x ?

A.

x	y
3	-2
3	0
3	4
3	5
3	8

C.

x	y
6	4
4	2
2	0
4	-2
6	-4

B.

x	y
6	4
4	2
2	0
0	2
-2	4

D.

x	y
-3	4
-2	5
-1	6
0	7
1	8

16. Which is a nonlinear function?

A. $f(x) = \frac{x}{3} + 5$

C. $f(x) = x + 2$

B. $f(x) = \sqrt{x}$

D. $f(x) = 3x - \frac{2}{3}$

17. In which table is y a linear function of x ?

A

x	y
0	10
2	6
4	4
6	2

B

x	y
-2	-2
0	4
2	10
4	16

C

x	y
-4	2
-2	5
0	7
2	12

18. Which of the following tables represents a linear relationship between x and y ?

A.

x	2	5	8	11
y	1	2	4	8

C.

x	2	5	8	11
y	-4	1	2	3

B.

x	2	5	8	11
y	-1	0	2	5

D.

x	2	5	8	11
y	-4	-2	0	2

19. What is the slope of the line that passes through the points $(2, -3)$ and $(-2, 5)$?

A. 2

C. $-\frac{1}{2}$

B. $\frac{1}{2}$

D. -2

20. Barry collects comic books. He currently has 350 comic books and plans to buy 10 comic books each month. Which equation represents the total number of comic books, c , that Barry will have after m months?

A. $c = 350m + 10$

C. $c = 350(10) + m$

B. $c = 10(m) + 350$

D. $c = 350 + 10$

21. Which equation represents the relationship between m and d on the chart below?

m	2	4	6	8
d	$\frac{1}{3}$	$\frac{2}{3}$	1	$1\frac{1}{3}$

A. $d = 0.06m$

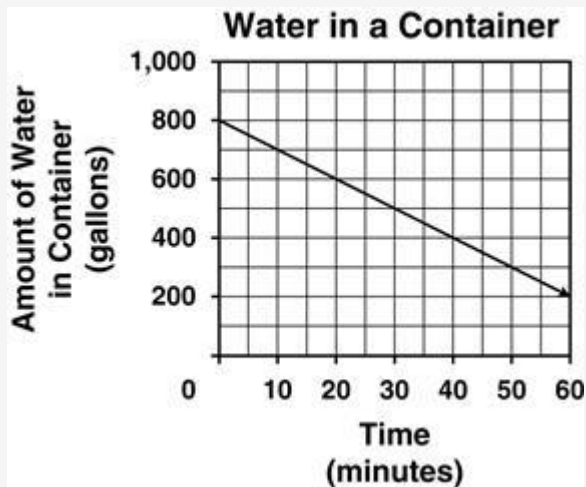
C. $d = 0.6m$

B. $d = \frac{1}{6}m$

D. $d = 6m$

22. The equation $y = 50x + 30$ represents the amount of money, y , in Amy's savings account over time, x . The equation $y = 30x + 50$ represents the amount in Sally's savings account. How does the graph of Sally's account differ from the graph of Amy's account?
- A. The graph representing Sally's account starts lower on the y -axis.
 - B. The graph representing Sally's account starts closer to the origin.
 - C. The graph representing Sally's account is steeper.
 - D. The graph representing Sally's account is flatter.

23. The graph models the amount of water in a container that is being pumped out at a constant rate.



Which statement is true based on the graph?

- A.** There are 200 gallons of water in the container at the start, and the water is being pumped from the container at a rate of 30 gallons per minute.
- B.** There are 200 gallons of water in the container at the start, and the water is being pumped from the container at a rate of 100 gallons per minute.
- C.** There are 800 gallons of water in the container at the start, and the water is being pumped from the container at a rate of one gallon every 6 minutes.
- D.** There are 800 gallons of water in the container at the start, and the water is being pumped from the container at a rate of 100 gallons every 10 minutes.

24. Which equation fits the data in the table below?

x	y
2	6
4	8
10	14

A. $y = 3x$

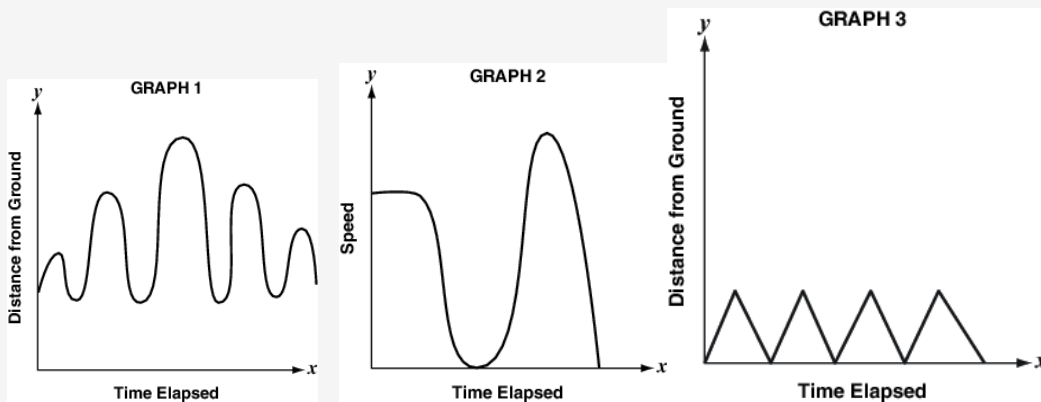
B. $y = 2x + 2$

C. $y = x + 4$

25. Samantha takes her sister Bethany to the playground. While they are there, they do the following activities:

- Bethany rides on the seesaw.
- Samantha pushes Bethany on the swing.
- Bethany climbs up the ladder and slides down the slide.

When they get home, Samantha and her dad make qualitative graphs to show the activities Bethany did. The graphs are shown below.

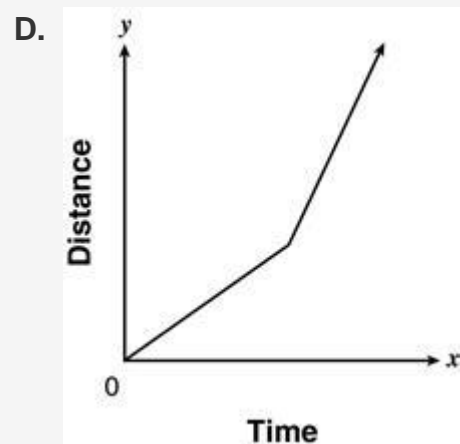
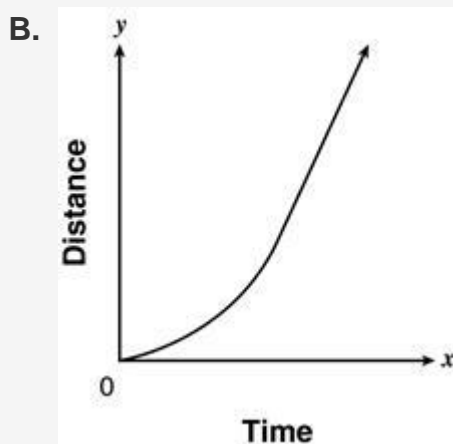
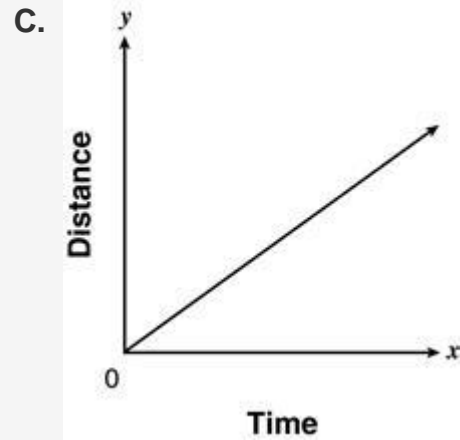
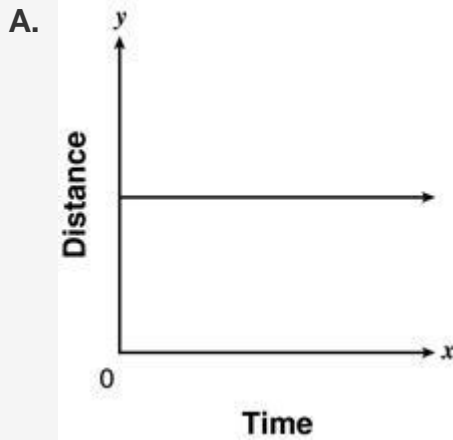


Part A. Which graph represents Bethany's ride on the seesaw? Explain or show your reasoning.

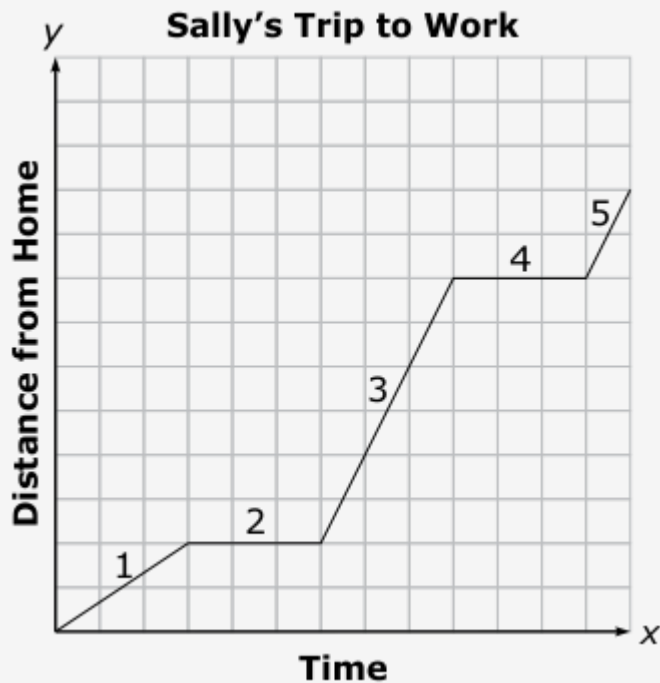
Part B. Which graph represents Bethany's ride on the swing? Explain or show your reasoning.

Part C. Which graph represents Bethany's ride on the slide? Explain or show your reasoning.

26. Which graph represents the movement of a train whose distance from a starting point changes at a constant rate?



27. The graph below details Sally's daily trip to work.

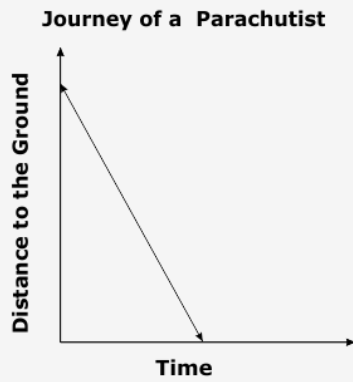


Which is the *best* scenario for part 3 on the graph?

- A. Sally is waiting at a stop light.
- B. Sally is driving on an incline at a constant rate.
- C. Sally is driving on a highway at a constant rate.
- D. Sally is speeding up then slowing down through a neighborhood.

28. A parachutist will be jumping out of a plane that is in the air at a high altitude. Which graph *best* displays the journey of a parachutist to the ground?

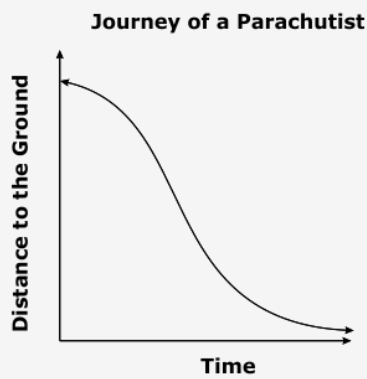
A.



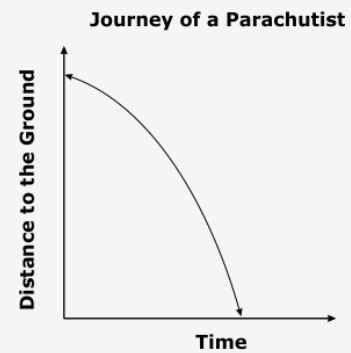
C.



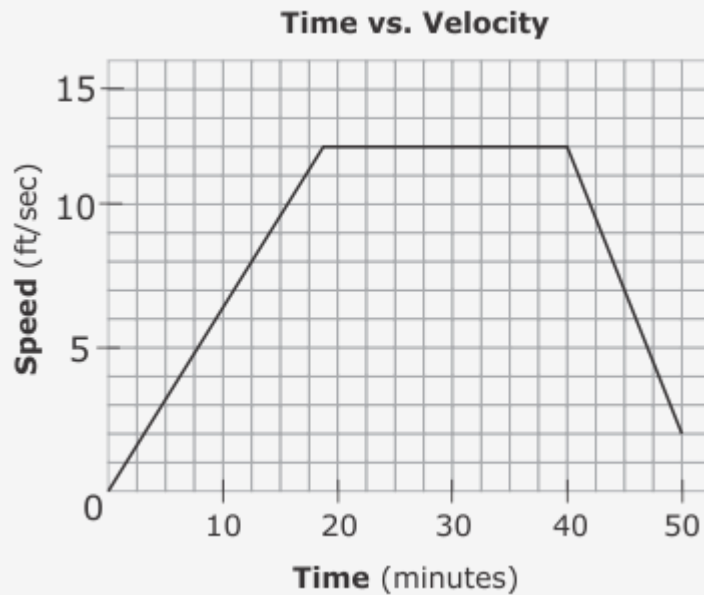
B.



D.



29. The graph below shows time vs. velocity over a 50-minute period of time.



Which scenario would be *best* represented on the graph?

- A. An object increases speed and then loses speed.
- B. An object continues to move away from a starting point.
- C. An object moves away from a starting point and then begins to come back.
- D. An object increases speed, then moves at a constant rate, and then loses speed.

30. Which graph best represents a nonlinear function?

