

SHMS 8th Algebra (SHM8Algebra)

Name: _____ Date: _____

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1. If n represents an even number greater than 2, what is the next larger even number?

A. $n + 1$

B. $2n + 1$

C. $2n$

D. $n + 2$

E. n^2

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2. **Joe, who is the youngest member of the wrestling team at Northwood High School, is 5 years less than one-half the age of the coach. If the coach is n years old, which expression describes Joe's age?**

A. $\frac{1}{2}n - 5$

B. $5 - \frac{1}{2}n$

C. $2n + 5$

D. $2n - 5$

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3. An object is dropped from a small plane flying at a height of 1000 feet above the ground. As the object falls, d , its distance above the ground after t seconds, is given by the formula below.

$$d = -16t^2 + 1000$$

How far above the ground is the object when it has fallen for 4 seconds?

- A. 984 feet
- B. 936 feet
- C. 872 feet
- D. 744 feet

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4. The formula for the surface area of a cylinder is $SA = 2\pi r(h + r)$. What is the value of SA when $r = 3$ centimeters and $h = 4$ centimeters?

- A. $28\pi \text{ cm}^2$
- B. $32\pi \text{ cm}^2$
- C. $36\pi \text{ cm}^2$
- D. $42\pi \text{ cm}^2$

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5.

An auto mechanic charges \$50 plus \$25 for every hour he works. The mechanic charged a person \$212.50. How many hours did the mechanic work?

- A. 2.8 hours
 - B. 3.75 hours
 - C. 6.5 hours
 - D. 8.5 hours
-

6.

Jeff dug a 4-foot deep hole to plant a tree. The hole needed to be at 1-foot deep plus an additional 6 inches deep for every 1-foot tall the tree was. How tall was the tree Jeff planted?

- A. 4 feet
- B. 5 feet
- C. 6 feet
- D. 7 feet

7. Which measure is closest to the length of a side of a square that has an area of 221 square feet?

- A. 11.0 ft
- B. 14.9 ft
- C. 16.4 ft
- D. 55.2 ft

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8. Which of the following numbers is a solution for the inequality shown below?

$$7(2x - 3) > 49$$

- A. 10
- B. 5
- C. 0
- D. -6

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9. What is the least whole number x for which $2x > 11$?

A. 5

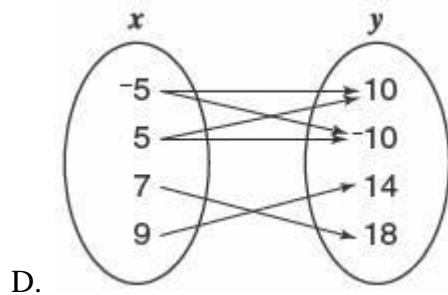
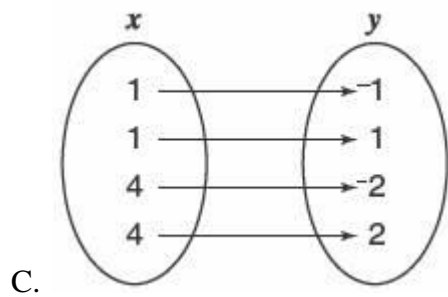
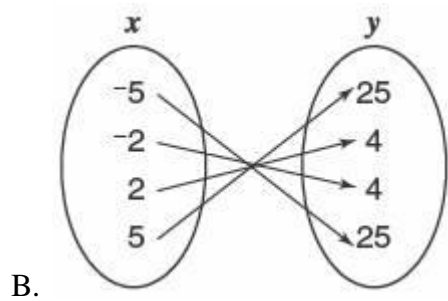
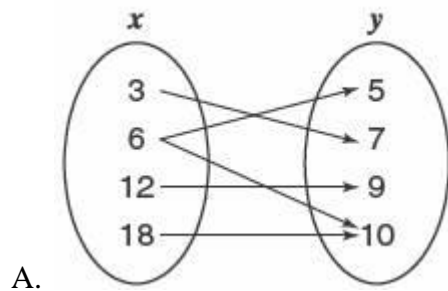
B. 6

C. 9

D. 22

E. 23

10. Which of these data sets represents a function?



11. The ordered pairs in the sets shown below are of the form (x, y) . In which set of ordered pairs is y a function of x ?

A. $\{(-6, 12), (1, 8), (1, 13)\}$

B. $\{(0, 2), (0, 4), (4, 0)\}$

C. $\{(7, -1), (7, -2), (7, -3)\}$

D. $\{(1, 3), (2, 4), (3, 5)\}$

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12. Which of these pairs of the form (x, y) could *not* lie on the graph of a function of x ?

A. $(1, 1)$ and $(3, 1)$

B. $(1, 1)$ and $(2, 1)$

C. $(1, 1)$ and $(1, 2)$

D. $(1, 1)$ and $(2, 2)$

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13. The owner of a car dealership noticed a pattern in the weekly car sales, as shown in the table below.

Weekly Car Sales

Week (w)	Number of Cars Sold (s)
1	12
2	18
3	24
4	30

For weeks 1 through 4, which of the following equations could represent the pattern of s cars sold during week w ?

- A. $s = 6w$
- B. $s = 12w$
- C. $s = 6(w + 6)$
- D. $s = 6(w + 1)$

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14. The numbers in the table follow a linear pattern.

x	y
2	14
4	26
6	38
8	50
28	170
30	?

What is the missing y value?

- A. 182
- B. 180
- C. 176
- D. 172

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15.

2, 5, 8, 11, 14,...

The arithmetic sequence for $x = 1$ through $x = 5$ is shown. Determine the slope of the associated linear function.

- A. -3
 - B. $-\frac{1}{3}$
 - C. $\frac{1}{3}$
 - D. 3
-

16. Noel is a computer repairman. To fix a computer, he charges a customer \$40 per hour, plus a fixed fee of \$15 for the service call, as represented by the equation below.

$$y = 40x + 15$$

In the equation, what is represented by the variable x ?

- A. the number of hours Noel worked
- B. the amount Noel charged per hour
- C. the fixed fee for the service call
- D. the total cost of the repair job

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x	y
-2	-11
2	1
4	7
0	-5

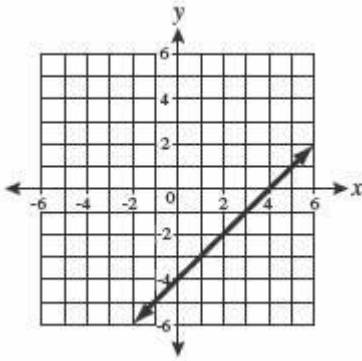
17.

Which equation is true for all the values in the table?

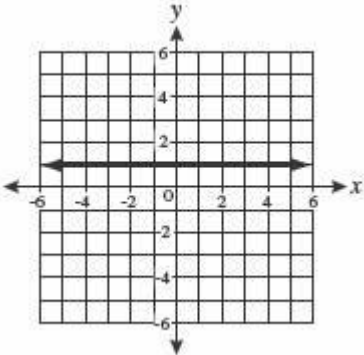
- A. $y = x - 9$
- B. $y = x - 5$
- C. $y = 3x - 5$
- D. $y = 2x - 7$

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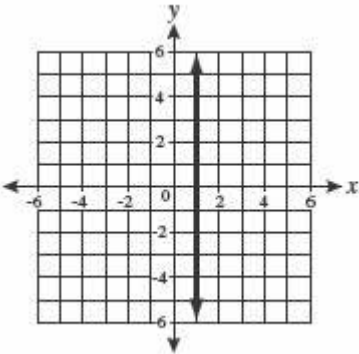
18. Which of the following shows the graph of a line with positive slope?



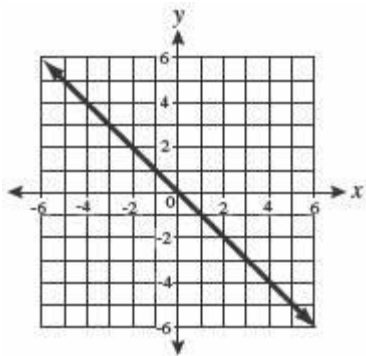
A.



B.



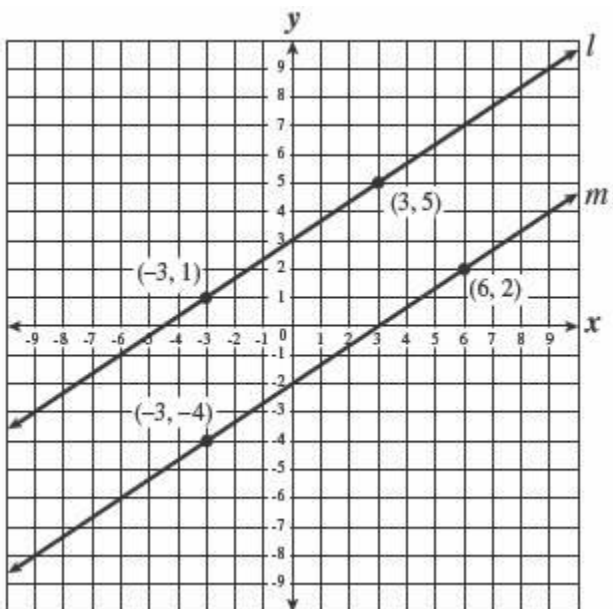
C.



D.

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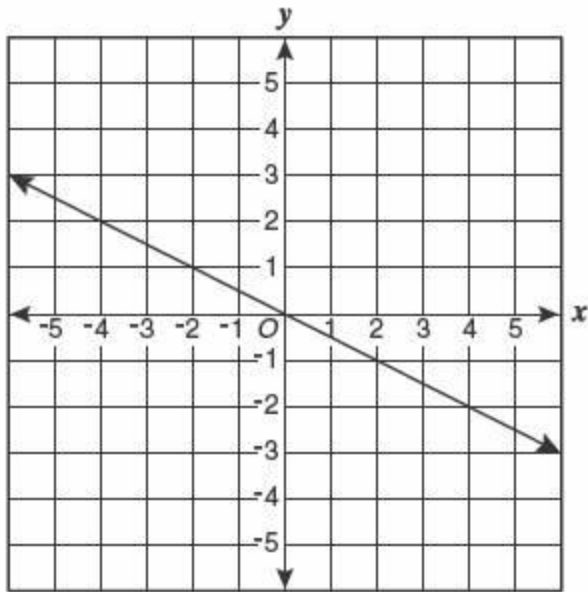
19. The coordinate grid below shows the graphs of two lines: line l and line m .



Which of the following is a true statement about the relationship between line l and line m ?

- A. The slope of line l is greater than the slope of line m .
- B. The x -intercept of line m is greater than the x -intercept of line l .
- C. The y -intercept of line m is greater than the y -intercept of line l .
- D. The slope of line m is greater than the slope of line l .

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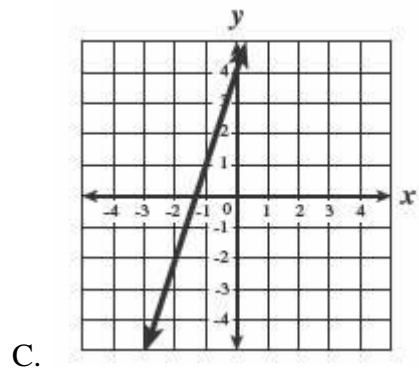
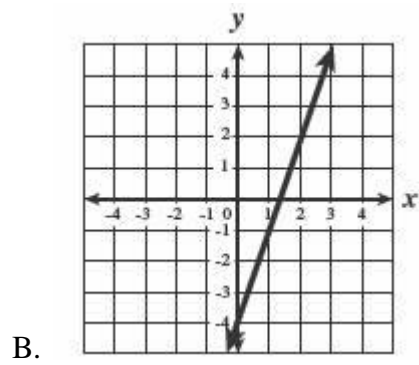
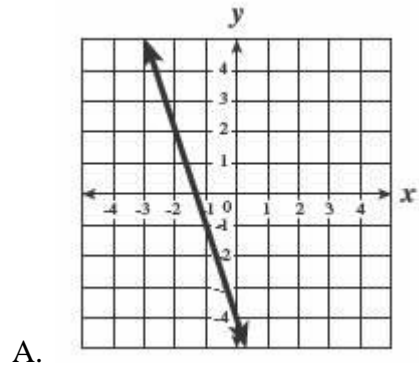


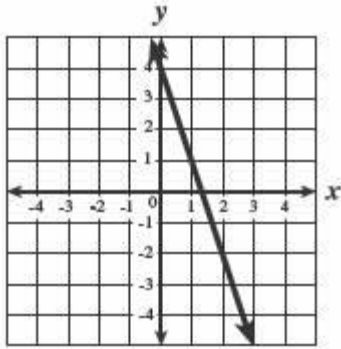
20.

What is most likely the slope of the line graphed above?

- A. -1
- B. $-\frac{1}{2}$
- C. $\frac{1}{2}$
- D. 1

21. Which graph below best represents $y = -3x + 4$?

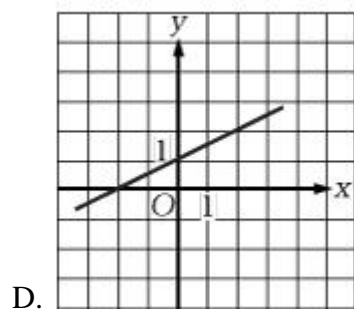
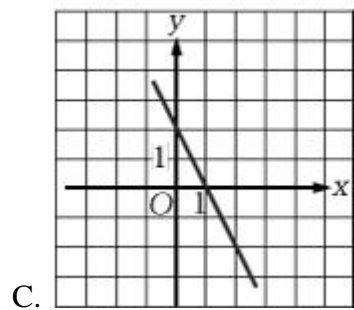
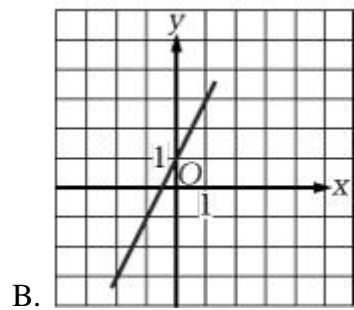
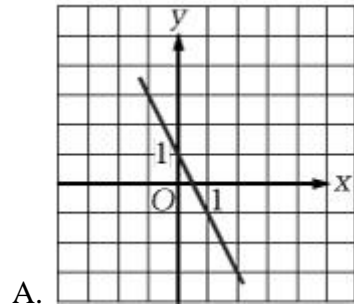


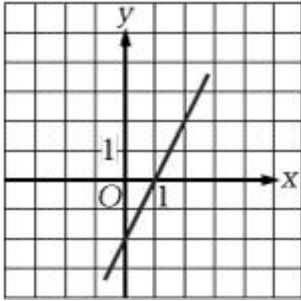


D.

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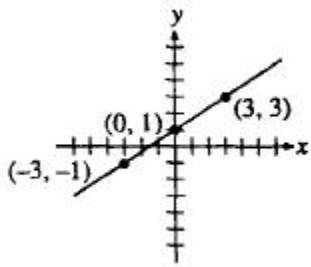
22. Which of the following is the graph of the line with equation $y = -2x + 1$?





E.

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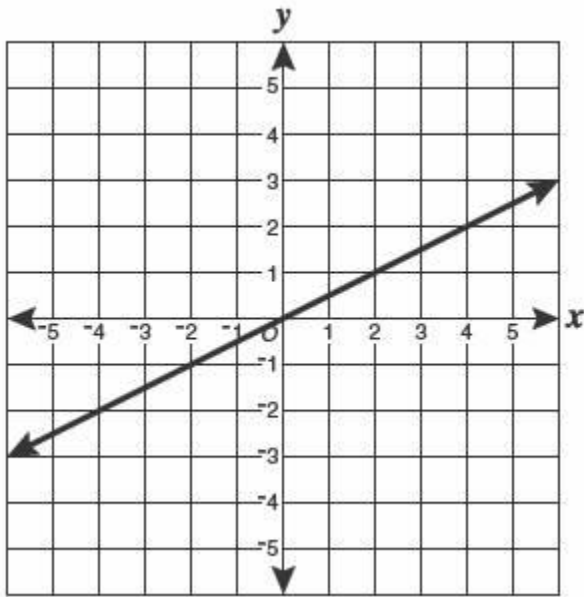
23.

What is the slope of the line shown in the graph above?

- A. $1/3$
- B. $2/3$
- C. 1
- D. $3/2$
- E. 3

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24. This graph represents $y = \frac{1}{2}x$.



If the line in the graph is shifted down 3 units, which is the equation for the new line?

- A. $y = -\frac{1}{2}x$
- B. $y = \frac{3}{2}x$
- C. $y = \frac{1}{2}x - 3$
- D. $y = \frac{1}{2}x + 3$

25. Which equation is the slope-intercept form of

$$-x + 6y = 12?$$

A. $y = \frac{1}{6}x + 2$

B. $y = -\frac{1}{6}x + 2$

C. $x = 6y - 12$

D. $6y = 12 + x$

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26. Janice rented a moving van for one day at a rate of \$30 per day plus \$0.25 per mile. Which of the following equations can she use to calculate c , the cost, in dollars, of renting the van for one day and driving it m miles?

A. $c = 55m$

B. $c = 30.25m$

C. $c = 30 + 0.25m$

D. $c = 0.25 + 30m$

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27.

For an art project, it costs Toby \$4 for supplies, and \$2 for every piece of paper he needs. Which equation could Toby use to determine the total cost (y) for the project for any number of pieces of paper (x)?

- A. $y = 2x + 4$
- B. $y = -2x + 4$
- C. $y = 4x + 2$
- D. $y = -4x - 2$

28. Which of the following ordered pairs (x, y) is a solution to the equation $2x - 3y = 6$?

- A. (6, 3)
- B. (3, 0)
- C. (3, 2)
- D. (2, 3)
- E. (0, 3)

29. A taxi company based its fares on the following chart.

Miles	0.1	0.2	0.3	⋮	1.0	3.0
Fare	\$2.05	\$2.10	\$2.15	⋮	\$2.50	\$3.50

If the pattern continues, what would be the fare for a trip of 6 miles?

- A. \$3.00
- B. \$5.00
- C. \$11.00
- D. \$15.00

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30. Mona's bank charges a \$10 fee per month plus a \$0.12 fee per check. The formula below gives f , the total fee in dollars for a month in which Mona writes n checks.

$$f = 10 + 0.12n$$

How many checks did Mona write during a month in which her total fee was \$12.52?

- A. 5
- B. 21
- C. 124
- D. 188

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31. A parking garage charges \$2.00 for the first hour and \$0.80 for each additional hour. Which of the following could be used to find C , the cost in dollars of parking h hours?

A. $C = 0.80(h - 1) + 2$

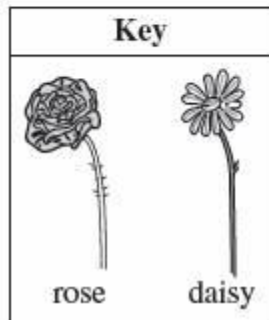
B. $C = 2(h - 1) + 0.80$

C. $C = 2.80(h - 1)$

D. $C = 3.60(h - 1)$

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32. A flower shop sells the two flower arrangements shown below.



Each rose has the same price, and each daisy has the same price. What is the price of one rose?

- A. \$3
- B. \$6
- C. \$9
- D. \$12

33.
$$\begin{cases} x + 2y = 1 \\ 2x - y = 7 \end{cases}$$

In the solution of the system of equations above, what is the value of x ?

A. - 1

B. 2

C. 3

D. 4

E. 5

