

TEST NAME: **8th Grade EOG Review-EE**  
TEST ID: **146466**  
GRADE: **08**  
SUBJECT: **Mathematics**  
TEST CATEGORY: **Shared Classroom Assessments**

Student: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

1. Grant's Cleaners and Hugh's Cleaners each charge customers a flat rate per shirt to wash, dry and fold shirts. The cost for cleaning 6 shirts at Grant's cleaners is \$41.34. The table below shows the cost Hugh's Cleaners charges for cleaning  $x$  shirts.

Number of Shirts	Cost
2	\$12.80
5	\$32.00
7	\$44.80

If a customer has 12 shirts that need to be cleaned, which company charges the least and by how much?

- A. Grant's Cleaners charges \$0.49 less than Hugh's Cleaners.
- B. Hugh's Cleaners charges \$0.49 less than Grant's Cleaners.
- C. Grant's Cleaners charges \$5.88 less than Hugh's Cleaners.
- D. Hugh's Cleaners charges \$5.88 less than Grant's Cleaners.
2. What is the value of  $(3^2)^4 \div 3^5$ ?

- A.  $\frac{1}{3}$
- B. 3
- C. 9
- D. 27

3. What is the solution to the equation below?

$$-3(2x - 4) = 4\left(\frac{3}{2}x - 3\right)$$

- A. 2
- B. -2
- C. no solution
- D. infinitely many solutions

4. What is the solution to the equation below?

$$8\left(\frac{-3}{2}x + 6\right) = -9\left(\frac{4}{3}x - 8\right)$$

- A. 1
- B. 5
- C. no solution
- D. all real numbers

5. Which is equivalent to  $\left(\frac{2}{3}\right)^2(4^0)(3^{-2})$  ?

- A.  $\frac{2^2}{3}$
- B.  $\frac{16}{81}$
- C.  $\frac{2^2}{3^4}$
- D.  $\frac{4}{27}$

6. What is the solution to the equation below?

$$0.5(9x + 18) = -1.5(5x) - 2(3x + 4.5)$$

- A. 1
- B. -1
- C. no solution
- D. infinitely many solutions

7. The area of a square is 196 square inches. What is the perimeter of the square?

- A. 14 inches
- B. 49 inches
- C. 56 inches
- D. 98 inches

8. What is the positive value of  $x$  in the equation  $x^2 = 0.09$ ?

- A. 0.045
- B. 0.03
- C. 0.30
- D. 0.450

9. What is the value of  $\sqrt[3]{\frac{1}{8}}$ ?

- A.  $\frac{1}{24}$
- B.  $\frac{1}{4}$
- C.  $\frac{3}{8}$
- D.  $\frac{1}{2}$

10. What is the value of  $x$  in the equation  $\sqrt[3]{x} = 6$ ?
- A. 2
  - B. 18
  - C. 36
  - D. 216
11. Jackson is comparing two squares. The first square has an area of  $64 \text{ cm}^2$ . The second square has an area of  $121 \text{ cm}^2$ . What is the difference in the perimeters of the two squares?
- A. 57
  - B. 29
  - C. 12
  - D. 3
12. What is the value of  $\sqrt{\frac{9}{4}}$ ?
- A. 0.75
  - B. 1.50
  - C. 2.25
  - D. 4.50
13. Bailey is comparing two squares. The first square has an area of  $144 \text{ cm}^2$ , and the second square has an area of  $81 \text{ cm}^2$ . What is the difference in the side lengths of the two squares?
- A. 63
  - B. 32
  - C. 8
  - D. 3

14. The equation  $y = 250x$  represents the number of bags of candy made,  $y$ , after  $x$  hours of work at candy factory A. The table below shows the number of bags of candy made at candy factory B after different hours of work.

<b>Hours of Work (<math>x</math>)</b>	<b>Bags of Candy Packaged (<math>y</math>)</b>
2	650
6	1,950
8	2,600

After 4 hours of work, which statement is true?

- A. Candy factory A makes 75 more bags of candy than candy factory B.
  - B. Candy factory B makes 75 more bags of candy than candy factory A.
  - C. Candy factory A makes 300 more bags of candy than candy factory B.
  - D. Candy factory B makes 300 more bags of candy than candy factory A.
15. Three times the difference of a number,  $x$ , and fourteen is six times the sum of the same number,  $x$ , and twelve. What is the value of  $x$ ?
- A. 3
  - B. -9
  - C. -10
  - D. -38

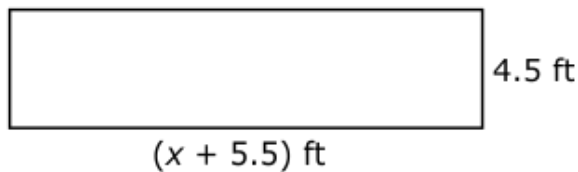
16. John and Sam make car parts for their company. The table below shows the number of parts John makes after different hours of work.

Hours Worked	Parts Made
2	96
3	144
7	336

The number of parts,  $P$ , Sam makes per hour,  $h$ , is given by the equation  $P = 46h$ . If John and Sam work a 12-hour shift, which statement is true?

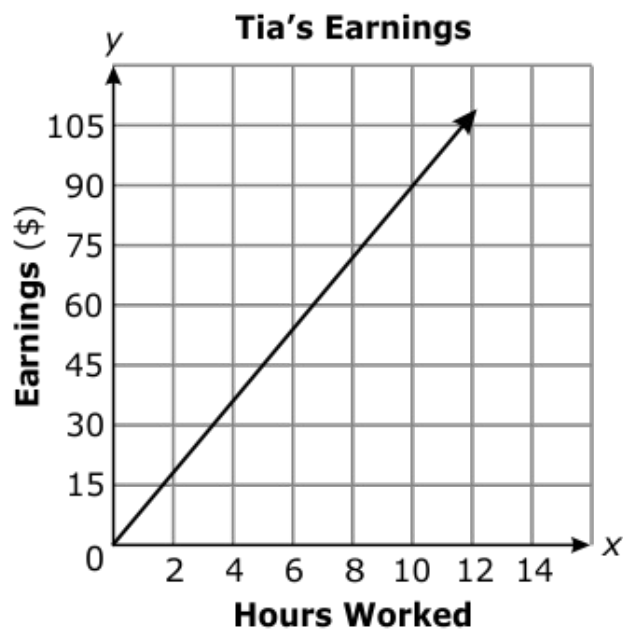
- A. John makes 24 more parts per day than Sam.
  - B. Sam makes 24 more parts per day than John.
  - C. Sam makes 12 more parts per day than John.
  - D. John makes 12 more parts per day than Sam.
17. John and Adrienne are both saving money. John has already saved \$100 and plans to save \$15 a week. Adrienne has already saved \$40 and plans to save \$25 a week. After how many weeks of saving will both John and Adrienne have saved the same amount of money?
- A. 6
  - B. 5
  - C. 4
  - D. 3

18. The perimeter of the rectangle below is 48 feet.



What is the value of  $x$ ?

- A. 5
  - B. 14
  - C. 19
  - D. 34
19. Ethan and Tia are paid hourly for their work at a restaurant. After 30 hours worked, Ethan earned \$255 before taxes. The graph below shows the amount Tia earns, before taxes, after working  $x$  hours.



What is the difference in Ethan and Tia's hourly pay?

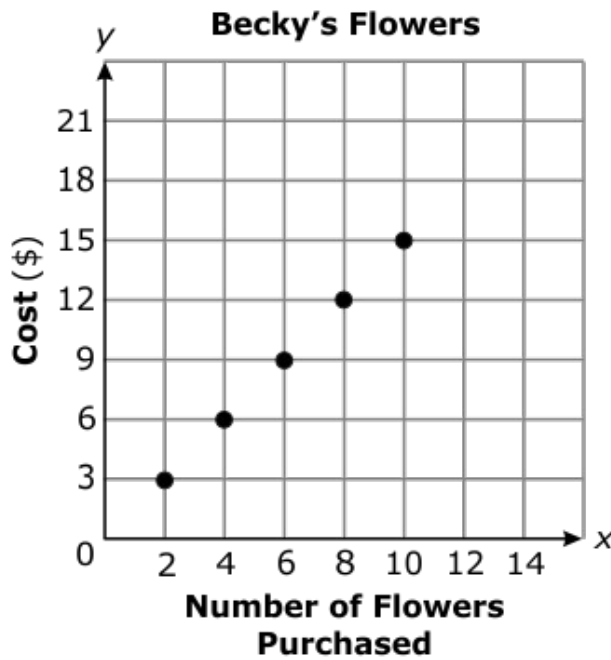
- A. \$0.50
- B. \$1.00
- C. \$15.00
- D. \$30.00



20. Patty and Becky both sell individual flowers to earn money. The table below shows the cost to buy flowers from Patty.

Number of Flowers	Cost
4	\$7.00
6	\$10.50
9	\$15.75

The cost of flowers from Becky are shown in the graph below.



Which statement is true?

- A. Patty charges \$0.25 more per flower than Becky.
- B. Becky charges \$0.25 more per flower than Patty.
- C. Patty charges \$0.10 more per flower than Becky.
- D. Becky charges \$0.10 more per flower than Patty.

21. Nigel has  $1\frac{3}{4}$  cups of butter in his refrigerator. He wants to make cookies and cupcakes. The equation  $y = 0.5x$  represents the amount of butter, in cups,  $y$ , needed per dozen cookies,  $x$ . The table below shows the number of cups of butter needed based on the number of cupcakes made.

<b>Cupcakes</b> (dozen) $x$	<b>Butter</b> (cups) $y$
1	1
1.5	1.5
2	2

Which statement is true?

- A. Nigel's cookie recipe requires more butter than the cupcake recipe.
  - B. Nigel can make 1 dozen cookies and 1 dozen cupcakes.
  - C. Nigel can make 4 dozen cookies.
  - D. Nigel can make 2 dozen cupcakes.
22. A system of equations is shown below.

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

$$y = -\frac{1}{4}x + 3$$

Using the solution to the system, what is the value of  $x + y$ ?

- A. 12
- B. 8
- C. 0
- D. -48

23. In 2007, there were approximately  $4.3 \times 10^6$  children born in the United States. There are approximately  $8.77 \times 10^3$  hours in a year.

**Approximately** how many children were born per hour in 2007?

A.  $4.9 \times 10^2$

B.  $4.9 \times 10^3$

C.  $2.0 \times 10^2$

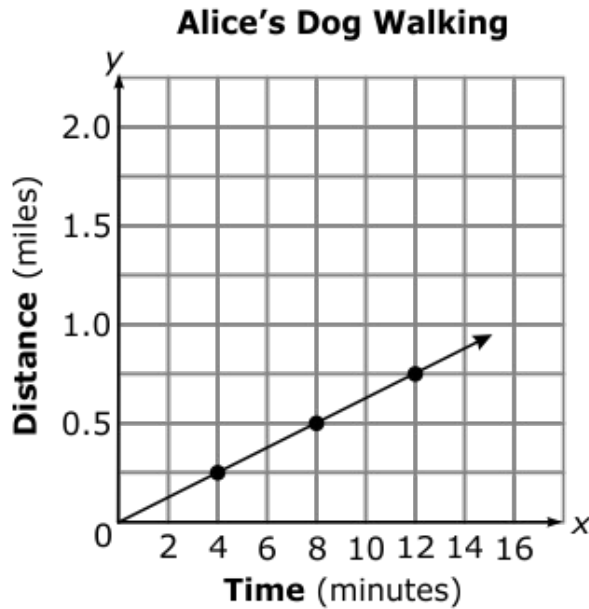
D.  $2.0 \times 10^3$

24. Sophie and Alice take turns walking a dog. The table below shows how long it takes Sophie to walk the dog different distances.

**Sophie's Dog Walking Table**

Time (minutes), $x$	Distance (miles), $y$
$8\frac{1}{4}$	$\frac{1}{2}$
$12\frac{3}{8}$	$\frac{3}{4}$
$24\frac{3}{4}$	$1\frac{1}{2}$

The graph below shows how long it takes Alice to walk the dog different distances.



Which statement is true?

- A. Sophie walks  $\frac{1}{4}$  of a minute faster per mile than Alice.
- B. Sophie walks  $1\frac{1}{2}$  minutes faster per mile than Alice.
- C. Alice walks  $\frac{1}{2}$  of a minute faster per mile than Sophie.
- D. Alice walks 1 minute faster per mile than Sophie.

25. A square has an area of  $2.25 \text{ cm}^2$ . What is the length of one side of the square?
- A. 1.125 cm
  - B. 1.5 cm
  - C. 4.5 cm
  - D. 5.06 cm
26. The surface area of the moon is about  $3.8 \times 10^7$  square kilometers. The surface area of Earth is about  $5.1 \times 10^8$  square kilometers. **About** how many times larger is the surface area of the Earth than the surface area of the moon?
- A. 130 times larger
  - B. 13 times larger
  - C. 1.3 times larger
  - D. 0.13 times larger
27. Lake Erie has a surface area of about  $9.9 \times 10^3$  square miles. Lake Michigan has a surface area of about  $2.2 \times 10^4$  square miles. **About** how many times larger is the surface area of Lake Michigan than the surface area of Lake Erie?
- A. 2 times larger
  - B. 5 times larger
  - C. 20 times larger
  - D. 50 times larger
28. What is the value of the expression  $(3^3)^2 \div 3^4$ ?
- A. 9
  - B. 6
  - C. 3
  - D. 1.5

29. The land area of North Carolina is approximately  $5 \times 10^4$  square miles. The land area of the entire United States is approximately  $4 \times 10^6$  square miles. **Approximately** how much larger is the land area of the United States than the land area of North Carolina?
- A. 20 times larger  
 B. 80 times larger  
 C. 200 times larger  
 D. 800 times larger
30. Michael and Corey both run track at their school. The equation  $y = 9.5x$  represents Michael's running rate, where  $x$  is the number of miles run, and  $y$  is the time it took him to run. The table below shows Corey's running rates.

**Corey's Running Rates**

Distance (miles) $x$	Time (minutes) $y$
2	20.5
4	41.0

Which statement is true?

- A. Michael runs 0.5 minutes per mile faster than Corey.  
 B. Michael runs 0.75 minutes per mile faster than Corey.  
 C. Corey runs 0.5 minutes per mile faster than Michael.  
 D. Corey runs 0.75 minutes per mile faster than Michael.
31. Which is equivalent to  $(7.5 \times 10^4) - (5.5 \times 10^3)$ ?
- A.  $6.95 \times 10^4$   
 B.  $6.95 \times 10^2$   
 C.  $2 \times 10^7$   
 D.  $2 \times 10^1$

32. What is the value of  $(9.7 \times 10^{-3}) + (1.3 \times 10^{-3})$ ?
- A.  $1.1 \times 10^3$
  - B.  $1.1 \times 10^2$
  - C.  $1.1 \times 10^{-2}$
  - D.  $1.1 \times 10^{-3}$
33. What is the value of the expression  $(4 \times 10^3)(5.6 \times 10^5)$ ?
- A. 224,000,000
  - B. 2,240,000,000
  - C. 22,400,000,000
  - D. 224,000,000,000
34. Which expression is equivalent to  $(8^2)^{-3} \times 8^4$ ?
- A.  $8^{-1}$
  - B.  $8^{-2}$
  - C.  $8^{-20}$
  - D.  $8^{-24}$
35. A baby hummingbird weighed about  $4.4 \times 10^{-3}$  pounds. A baby eastern bluebird weighed about  $6.2 \times 10^{-2}$  pounds. **About** how many times heavier was the baby eastern bluebird than the baby hummingbird?
- A. 2
  - B. 7
  - C. 10
  - D. 14

36. Which expression is equivalent to  $\frac{1}{81}$ ?

- A.  $3^{-1} \times 3^{-3}$
- B.  $3^1 \times 3^{-3}$
- C.  $3^{-1} \div 3^{-3}$
- D.  $3^{-3} \div 3^{-1}$

37. What is the value of  $3^4 \div (3^2)^3$ ?

- A. 9
- B. 3
- C.  $\frac{1}{3}$
- D.  $\frac{1}{9}$

38. Which expression is equivalent to  $\frac{1}{25}$ ?

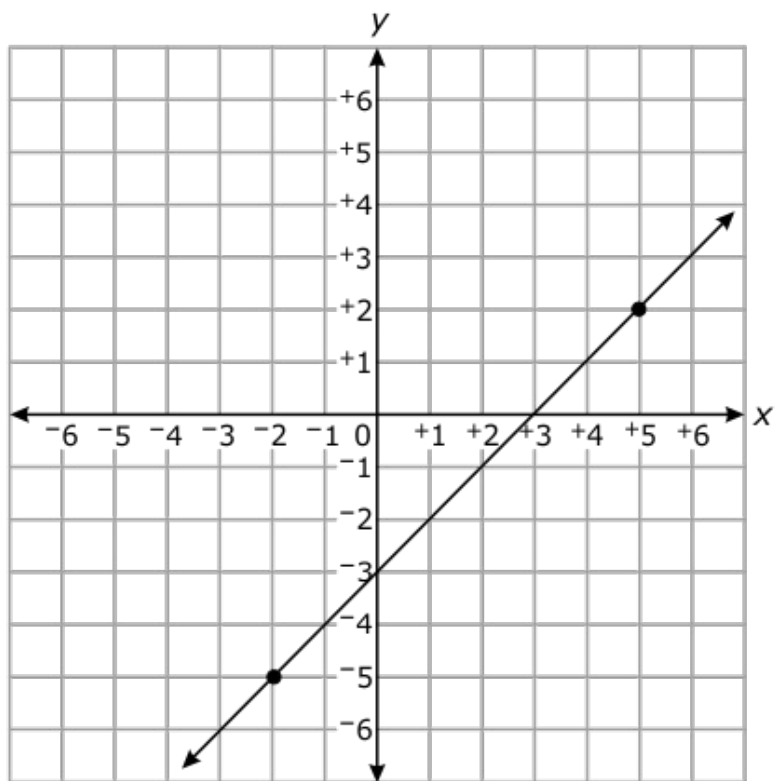
- A.  $5^{-3} \times 5^5$
- B.  $5^1 \times 5^{-1}$
- C.  $5^{-3} \times 5$
- D.  $5^{-2} \times 5^4$

39. What is the value of  $(3^2) \times (2^{-2})^2$ ?

- A.  $\frac{9}{16}$
- B.  $\frac{9}{8}$
- C. -48
- D. -144

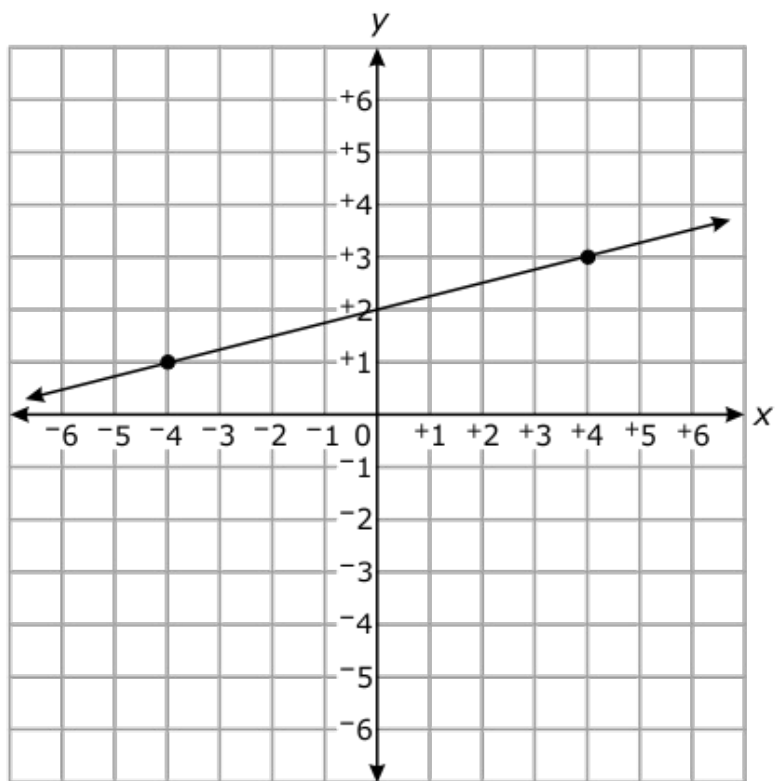


40. Which is an equation of the line graphed below?



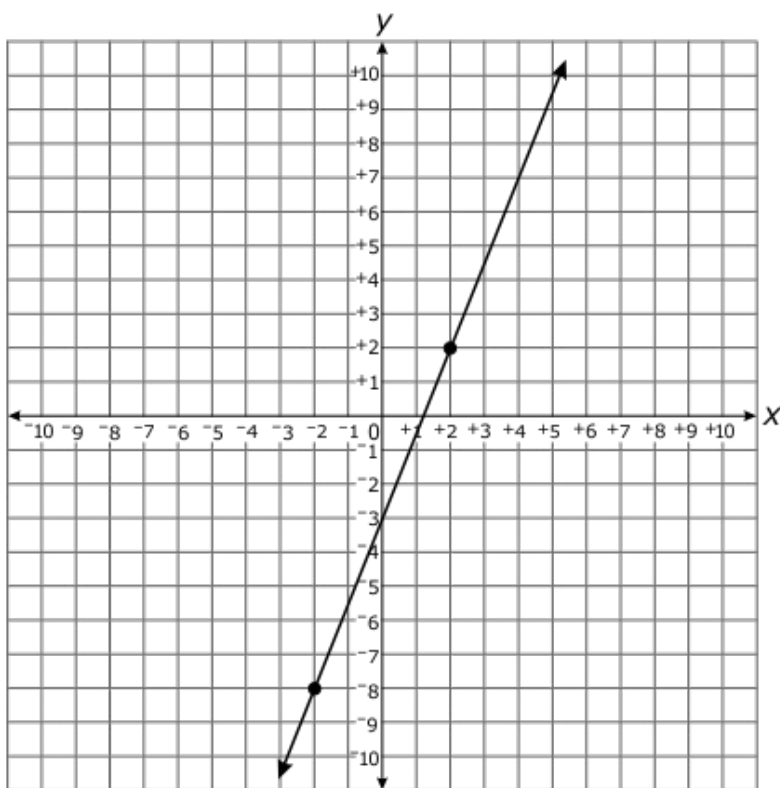
- A.  $y = x - 3$
- B.  $y = x + 3$
- C.  $y = -3x$
- D.  $y = 3x$

41. Which is an equation of the line graphed below?



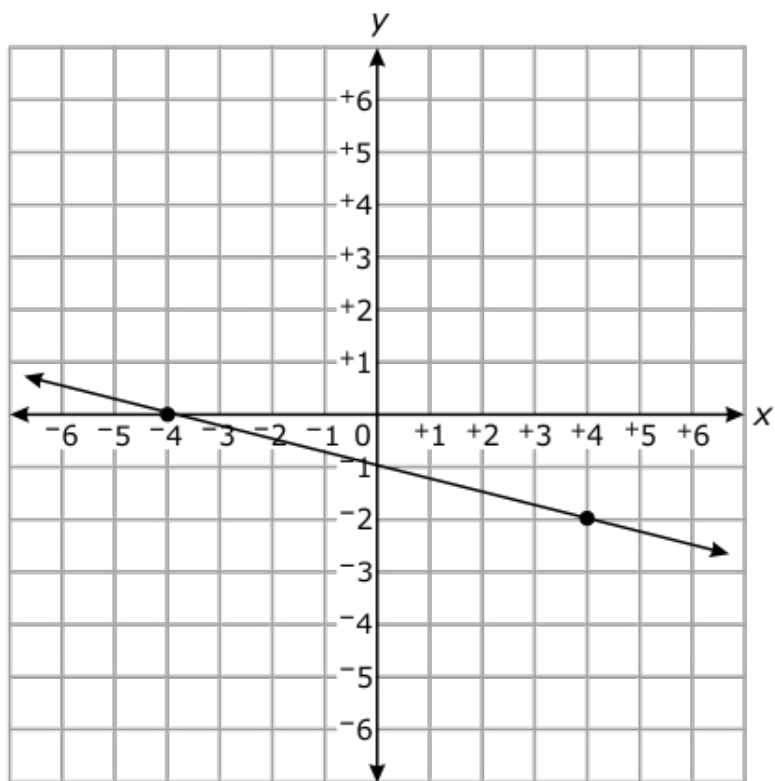
- A  $y = 4x - 7$
- B  $y = 4x + 2$
- C  $y = \frac{1}{4}x + 2$
- D  $y = \frac{1}{4}x - 7$

42. Which is an equation of the line graphed below?



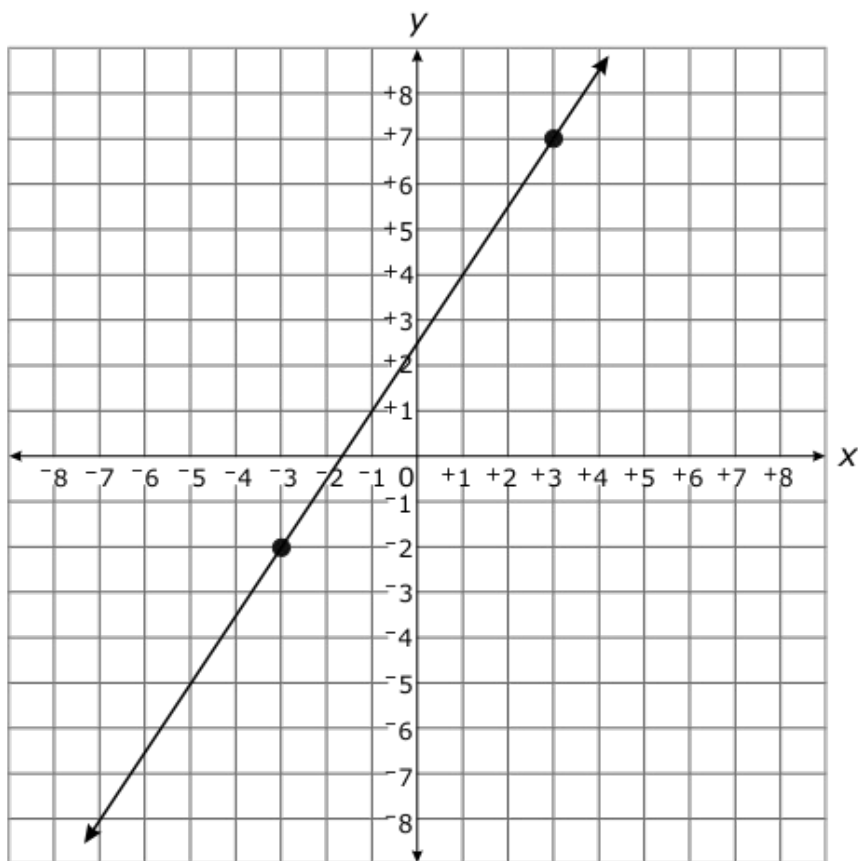
- A.  $y = 0.4x + 1$
- B.  $y = 0.4x - 3$
- C.  $y = 2.5x + 1$
- D.  $y = 2.5x - 3$

43. What is the equation of the line shown on the graph below?



- A.  $y = -4x - 1$
- B.  $y = -4x - 4$
- C.  $y = -\frac{1}{4}x - 1$
- D.  $y = -\frac{1}{4}x - 4$

44. Which is an equation of the line graphed below?



- A  $y = 0.67x - 1.5$
- B  $y = 0.67x + 2.5$
- C  $y = 1.5x - 1.5$
- D  $y = 1.5x + 2.5$

45. The table below shows the cost for  $x$  gallons of milk to be delivered to a restaurant.

Gallons of Milk ( $x$ )	Cost ( $y$ )
3	\$12.15
5	\$20.25
7	\$28.35
9	\$36.45

When graphed, what does the value of the slope mean for this data?

- A. The price per gallon of milk is \$4.05.
  - B. The price per gallon of milk is \$8.10.
  - C. There is a delivery charge of \$12.15.
  - D. There is a delivery charge of \$36.45.
46. A system of equations is shown below.

$$\begin{aligned}y &= -3x + 4 \\ 2x - y &= 6\end{aligned}$$

What is the value of  $x$  in the solution to the system?

- A. -10
- B. -2
- C. 2
- D. 10

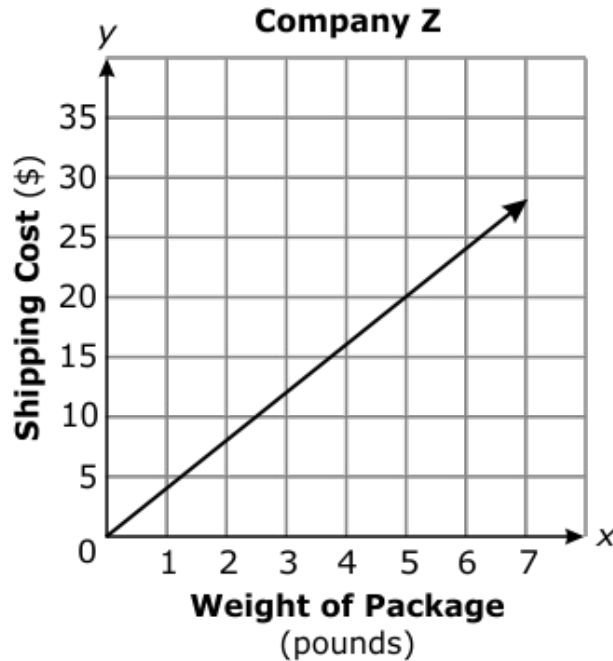
47. A system of equations is shown below.

$$\begin{aligned}4x - y &= -6 \\ y &= -2x + 2\end{aligned}$$

What is the value of  $y$  in the solution to the system?

- A.  $3\frac{1}{3}$
- B.  $1\frac{1}{3}$
- C.  $-\frac{2}{3}$
- D.  $-1\frac{1}{3}$

48. The cost to ship a package using company W can be represented by the equation  $y = 5x$ , where  $x$  is the weight, in pounds, of a package. The graph below shows the cost to ship a package using company Z.

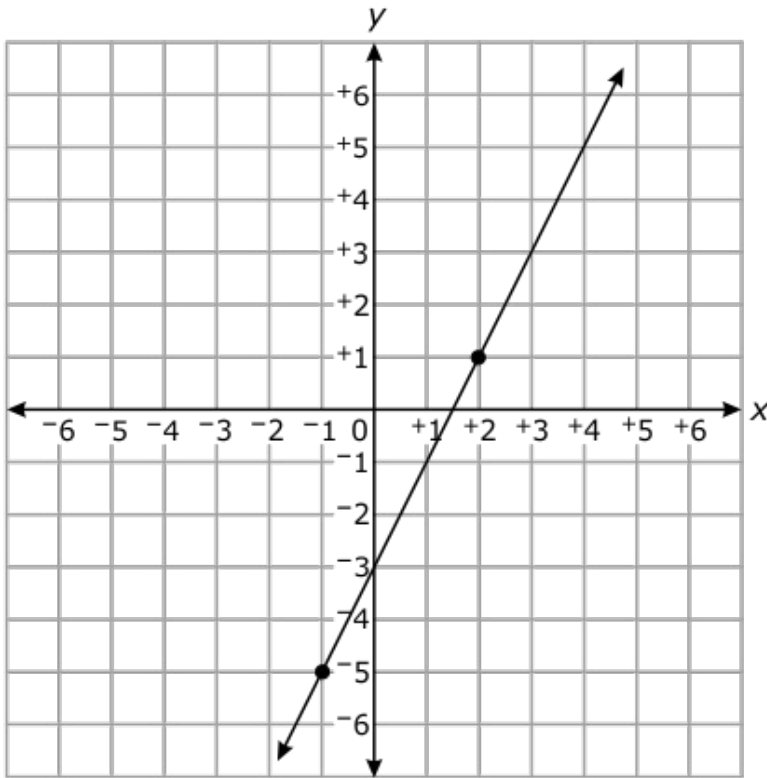


If a 10-pound package needs to be shipped, which statement is true?

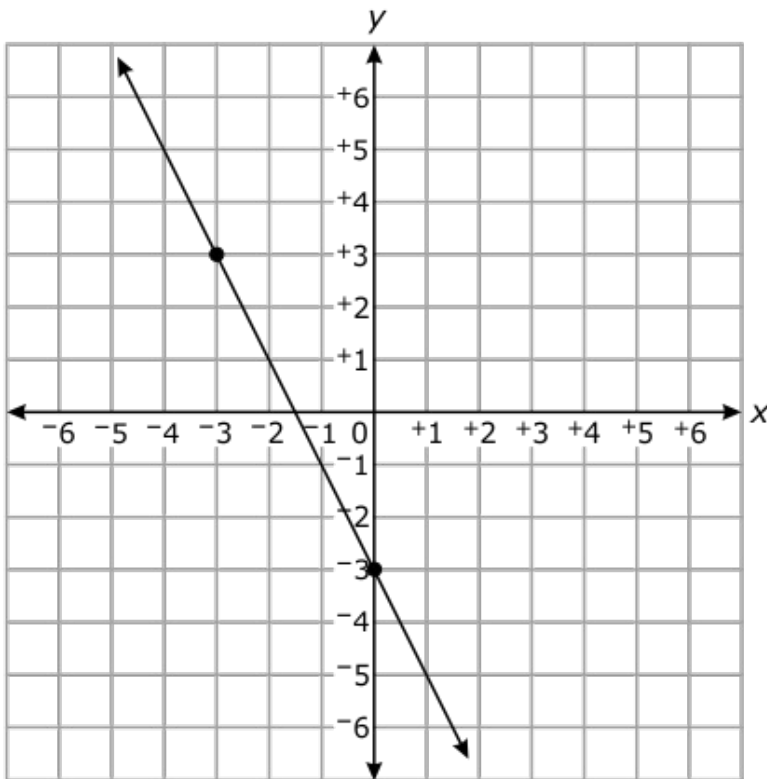
- A. It will cost \$1 less to ship the package with company W than with company Z.
  - B. It will cost \$1 less to ship the package with company Z than with company W.
  - C. It will cost \$10 less to ship the package with company W than with company Z.
  - D. It will cost \$10 less to ship the package with company Z than with company W.
49. Which graph shows the line of the equation  $y = \frac{1}{2}x - 3$  ?



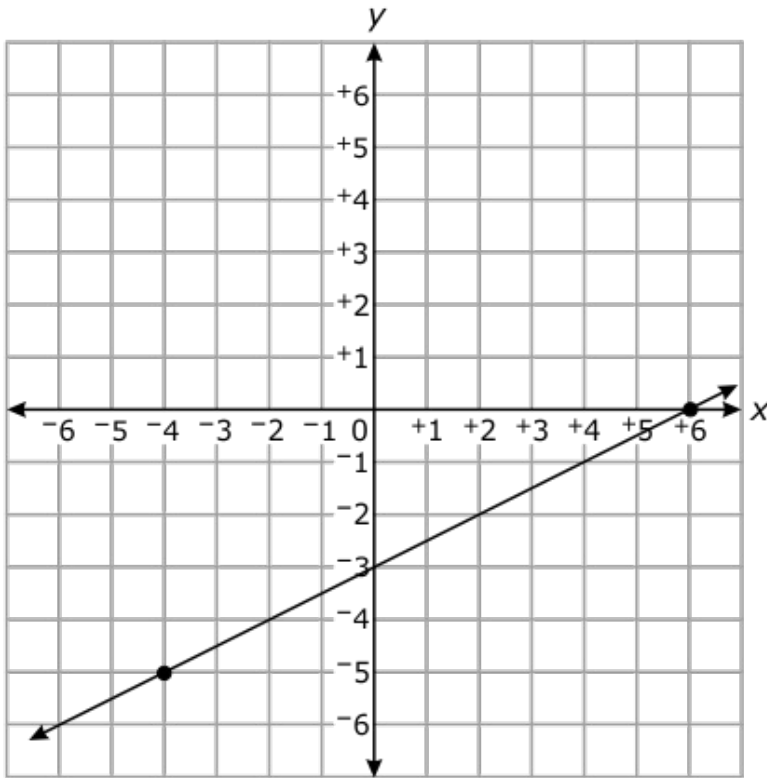
A.



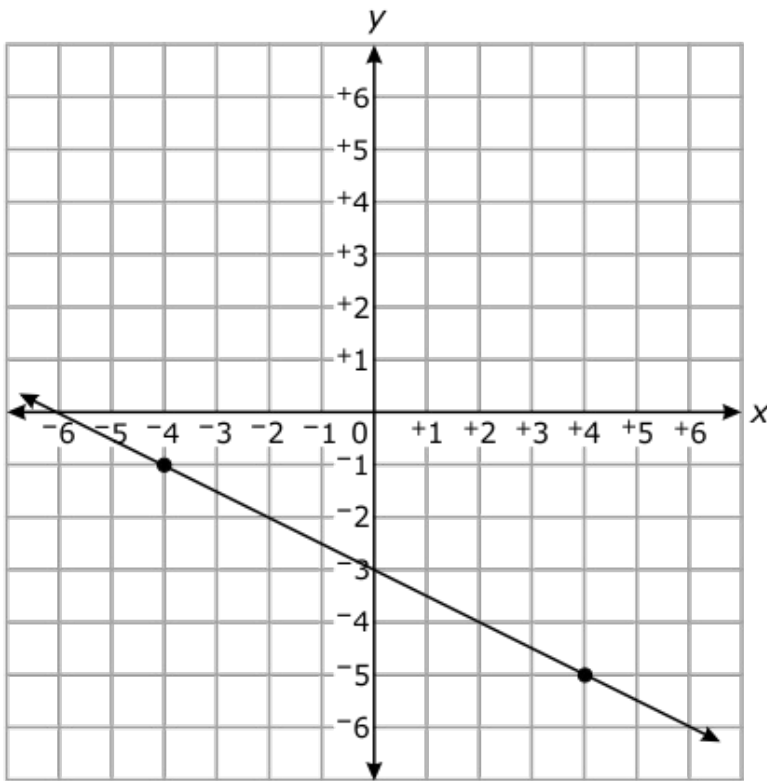
B.



C.



D.



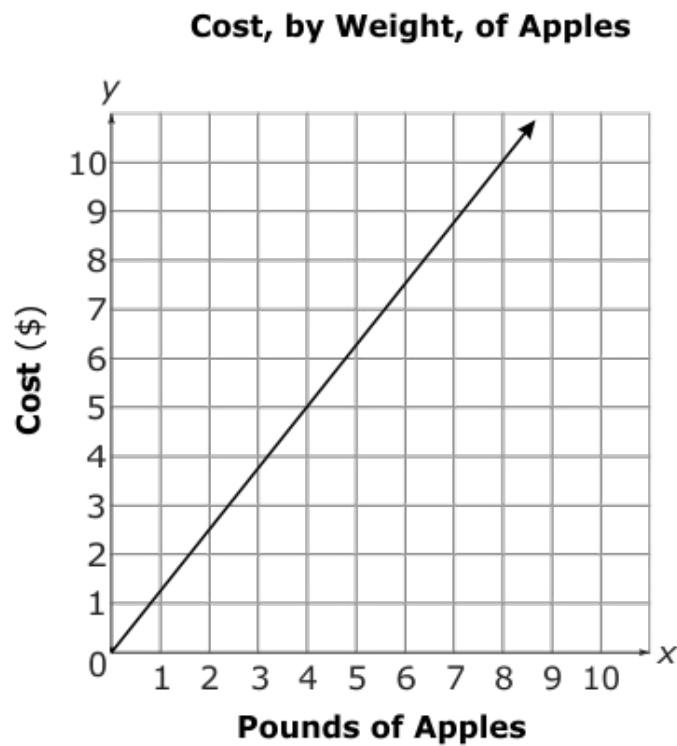
50. A system of equations is shown below.

$$\begin{aligned}y &= 5x + 4 \\6x - 2y &= 4\end{aligned}$$

Using the solution to the system, what is the value of  $x + y$ ?

- A. 10
- B. 4
- C. -11
- D. -14

51. The graph below shows the total cost,  $y$ , of  $x$  pounds of apples.



What is the slope of the line?

- A. 1.10
- B. 1.25
- C. 1.50
- D. 1.75

52. Two stores charge a different price for each shirt purchased.

- Store 1 sells shirts for \$14 each.
- The table below shows the cost to purchase different numbers of shirts from Store 2.

<b>Number of Shirts Purchased</b> ( $x$ )	<b>Total Cost</b> ( $y$ )
4	\$48
7	\$84
15	\$180
22	\$264

What is the difference in cost of a single shirt purchased at the two stores?

- A. \$2
- B. \$4
- C. \$12
- D. \$14

53. A system of equations is shown below.

$$\begin{aligned}y &= -2x + 6 \\6x + 3y &= 18\end{aligned}$$

What is the solution to the system of equations?

- A.  $(-2, 10)$
- B.  $(3, 0)$
- C. no solution
- D. all real numbers

54. At a constant speed, cyclist #1 traveled 29 miles in 2 hours. The chart below shows the distance cyclist #2 traveled,  $x$ , for different amounts of time,  $y$ .

<b>Time</b> (hours)	<b>Distance</b> (miles)
0.50	7.6
1.25	19.0
2.50	38.0

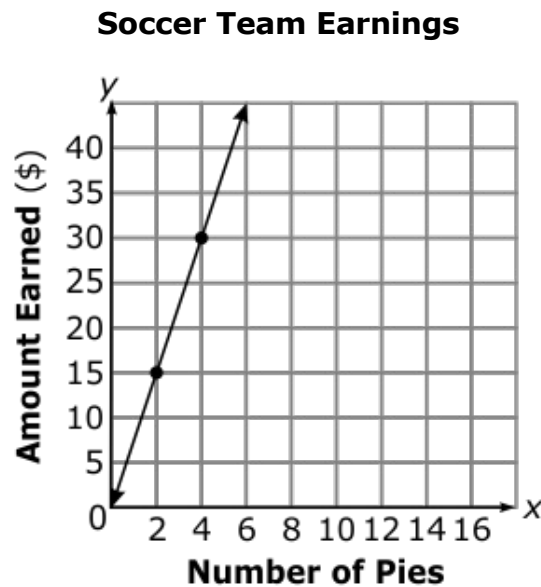
Which statement is true?

- A. Cyclist #1 is 0.7 mph faster than cyclist #2.
- B. Cyclist #1 is 1.7 mph faster than cyclist #2.
- C. Cyclist #2 is 0.7 mph faster than cyclist #1.
- D. Cyclist #2 is 1.7 mph faster than cyclist #1.

55. The basketball team and the soccer team held a pie sale to earn money for summer camp. The table below shows the amount of money the basketball team earned based on the number of pies sold.

<b>Number of Pies</b>	<b>Amount Earned (\$)</b>
2	\$19.00
3	\$28.50
4	\$38.00
5	\$47.50

The graph below displays the amount of money the soccer team earned based on the number of pies sold.



Which statement is true?

- A. The basketball team charged \$2 more for a pie than the soccer team.
- B. The soccer team charged \$2 more for a pie than the basketball team.
- C. The basketball team charged \$4 more for a pie than the soccer team.
- D. The soccer team charged \$4 more for a pie than the basketball team.

56. A system of equations is shown below.

$$\begin{aligned}y &= 2x - 9 \\ 3x + 2y &= 10\end{aligned}$$

What is the value of  $y$  in the solution to the system?

- A. -3
- B. -1
- C. 3
- D. 4

57. The approximate lengths of two rivers are shown in the table below.

River	Length (miles)
Nile	$4.1 \times 10^3$
Colorado	$9 \times 10^2$

What is the difference in the length of the two rivers?

- A. The Nile River is approximately 490 miles longer than the Colorado River.
  - B. The Colorado River is approximately 490 miles longer than the Nile River.
  - C. The Nile River is approximately 3,200 miles longer than the Colorado River.
  - D. The Colorado River is approximately 3,200 miles longer than the Nile River.
58. A hippopotamus weighs about  $7 \times 10^3$  pounds. An elephant weighs about  $1.2 \times 10^4$  pounds. Which animal weighs the most and by how much?
- A. The hippopotamus weighs 580 pounds more than the elephant.
  - B. The elephant weighs 580 pounds more than the hippopotamus.
  - C. The hippopotamus weighs 5,000 pounds more than the elephant.
  - D. The elephant weighs 5,000 pounds more than the hippopotamus.

59. What is the standard form of  $3.45 \times 10^{-3}$ ?

- A. -3,450
- B. -0.00345
- C. 0.00345
- D. 3,450

60. Lucas Electrical Company charges \$64 for 2 hours of work, or \$160 for 5 hours of work. The rates for Martin Electrical Company are shown in the table below.

<b>Hours Worked</b>	<b>Charge</b>
3	\$102
6	\$204
8	\$272

What is the difference in the hourly rate between the two electrical companies?

- A. \$4
- B. \$3
- C. \$2
- D. \$1

61. A moving company offers two price plans.

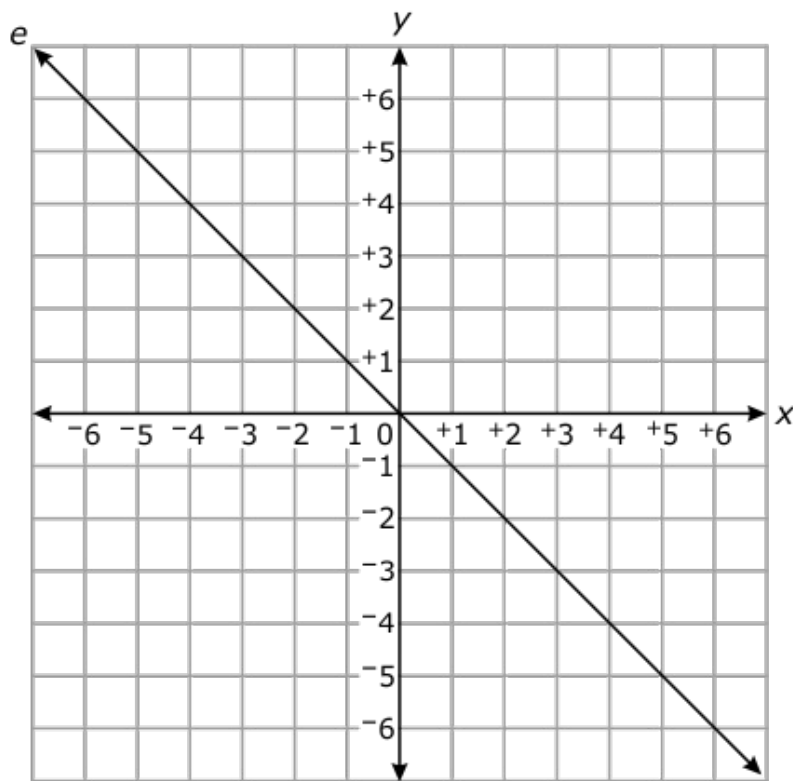
- The first plan charges a flat rate of \$39.95 plus \$0.12 per mile driven.
- The second plan charges a flat rate of \$19.95 plus \$0.28 per mile driven.

How many miles must the truck be driven for the two plans to cost the same?

- A. 50 miles
- B. 75 miles
- C. 125 miles
- D. 150 miles



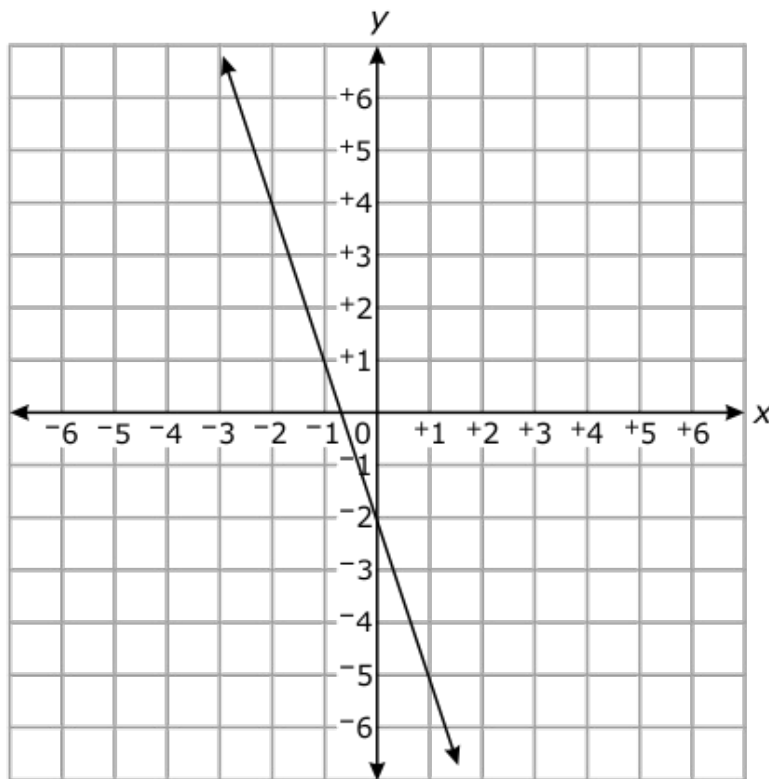
62. The thickness of a sheet of paper is about  $3.8 \times 10^{-3}$  inches. A stack of paper contains 5,000 sheets. What is the thickness of this stack of paper?
- A. 1.2 inches  
 B. 1.9 inches  
 C. 12 inches  
 D. 19 inches
63. Line  $e$  is graphed below. Line  $f$  will be graphed below. The equation for line  $f$  is  $y = 2x - 3$ .



What will be the point of intersection of lines  $e$  and  $f$ ?

- A.  $(2, -2)$   
 B.  $(1, -1)$   
 C.  $(-1, 1)$   
 D.  $(-2, 2)$

64. Which is an equation of the line graphed below?



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

65. Kirsten babysits over the weekend. She charged \$5.00 per hour on Saturday and \$7.00 per hour on Sunday. She worked 1 more hour on Saturday than Sunday. She earned a total of \$89. How many total hours did Kirsten babysit on Saturday and Sunday?

- A. 15
- B. 14
- C. 13
- D. 12

66. What is the product of  $3.6 \times 10^6$  and 900,000,000 expressed in scientific notation?
- A.  $3.24 \times 10^{16}$   
B.  $3.24 \times 10^{15}$   
C.  $1.26 \times 10^{16}$   
D.  $1.26 \times 10^{15}$
67. One of the viruses that causes the common cold measures  $2.5 \times 10^{-6}$  m. What is this measurement written in standard form?
- A.  $^{-}0.00000025$  m  
B.  $^{-}0.0000025$  m  
C.  $0.0000025$  m  
D.  $0.00000025$  m
68. Four volcanos and their approximate heights are shown in the table below.

<b>Volcano</b>	<b>Height (feet)</b>
Etna	$1.1 \times 10^4$
Fuji	$1.24 \times 10^4$
Tambora	$9.4 \times 10^3$
Pular	$2 \times 10^4$

Which volcano is the tallest?

- A. Etna  
B. Fuji  
C. Tambora  
D. Pular

69. The population of North Carolina is approximately  $9.8 \times 10^6$ . The population of Florida is approximately  $1.9 \times 10^7$ . What is the **approximate** difference in the two populations?
- A. 790,000  
B. 920,000  
C. 7,900,000  
D. 9,200,000
70. Which expression is equivalent to the product of 4,500 and  $-0.000023$ ?
- A.  $(4.5 \times 10^3) \times (2.3 \times 10^{-5})$   
B.  $(4.5 \times 10^3) \times (-2.3 \times 10^{-5})$   
C.  $(4.5 \times 10^2) \times (2.3 \times 10^4)$   
D.  $(4.5 \times 10^2) \times (-2.3 \times 10^{-4})$
71. A candy company produced  $1.3 \times 10^6$  pieces of candy in an 8-hour day. How many pieces of candy did the company produce per hour?
- A. 1,625  
B. 16,250  
C. 162,500  
D. 1,625,000
72. Hailey purchased a laptop computer, a printer, and a wireless router.
- The printer cost \$99 before taxes.
  - The wireless router cost \$34 before taxes.
  - The total amount she paid, including a 7% sales tax, was \$814.27.
- What was the cost of the laptop computer, before sales tax?
- A. \$628  
B. \$633  
C. \$637  
D. \$674

73. Lucas earns \$7.50 per hour, and Ashley earns \$8.00 per hour. Last week, Ashley worked 10 more hours than Lucas. The total amount Lucas and Ashley earned last week was \$266. How many hours did Lucas work last week?
- A. 22
  - B. 17
  - C. 12
  - D. 7
74. Steve's test scores in math are 85, 93, 90, and 86. What score must Steve earn on his next test to have a test average of exactly 90?
- A. 89
  - B. 90
  - C. 96
  - D. 99
75. Catherine has three times as many chocolates as Diane. If Catherine gives Diane six chocolates, she will then have twice as many chocolates as Diane. How many chocolates did Catherine have to begin with?
- A. 12
  - B. 18
  - C. 24
  - D. 54
76. At the end of February 2005, the world population was about  $6.502 \times 10^9$ . The population increased by an average of about 200,000 persons per day. What was the **approximate** world population at the end of March 2005?
- A.  $6.504 \times 10^9$
  - B.  $6.508 \times 10^9$
  - C.  $7.102 \times 10^9$
  - D.  $8.502 \times 10^9$

77. What is the value of the expression  $\frac{(5^2)^3}{(5^3)^3}$  ?

A.  $\frac{1}{125}$

B.  $\frac{1}{25}$

C.  $\frac{1}{3}$

D.  $\frac{2}{3}$

78. The cost of a gallon of gasoline at Store *M* is represented by the equation  $y = 3.61x$ , where  $x$  is the number of gallons of gasoline and  $y$  is the total cost. The costs of gallons of gasoline at Store *N* are listed in the table below.

**Store *N* Gasoline Prices**

Gallons	Total Cost
2	\$7.16
4	\$14.32
6	\$21.48

What is the difference in the cost of a gallon of gasoline at the two stores?

A. \$0.03

B. \$0.06

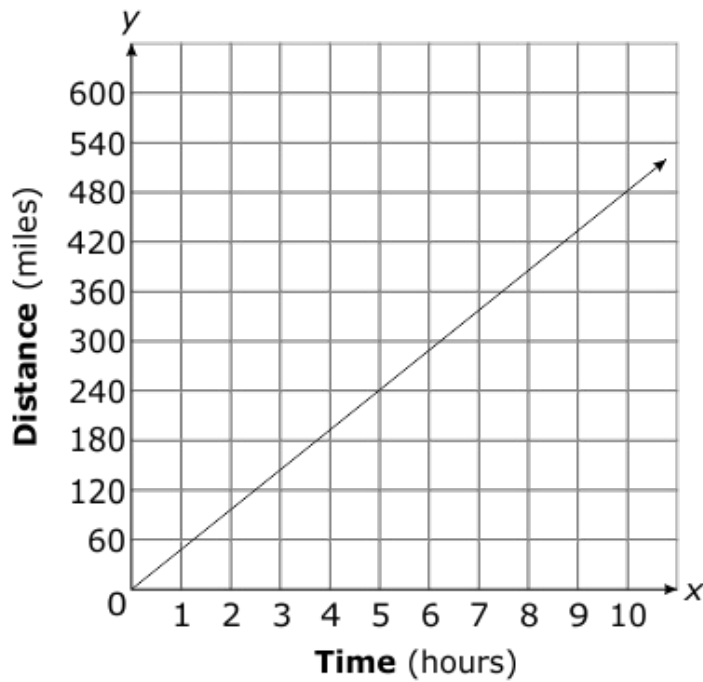
C. \$3.55

D. \$3.58

79. A tree is about 2.95 meters high. The grass under it is about  $1.45 \times 10^{-1}$  meter high. **About** how many times shorter is the grass than the tree?

- A. 2
- B. 5
- C. 20
- D. 50

80. Stephanie tracked how far she traveled each hour of her trip. Her results are recorded in the graph below.



John used the equation  $y = 50x$  to calculate his average distance traveled, where  $y$  is the distance in miles and  $x$  is time in hours. Based on the information, which statement is true?

- A. John traveled 2 miles per hour faster than Stephanie.
- B. Stephanie traveled 2 miles per hour faster than John.
- C. John traveled 10 miles per hour faster than Stephanie.
- D. Stephanie traveled 10 miles per hour faster than John.

81. What is the standard form of  $8.6 \times 10^6$ ?

- A 86,000,000
- B 8,600,000
- C 860,000

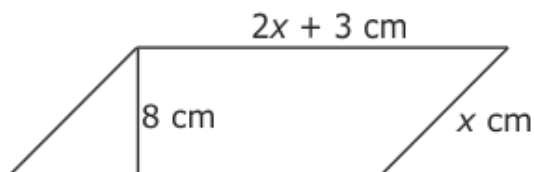
82. What is the value of  $\sqrt{0.36}$ ?

- A 6
- B 0.6
- C 0.06

83. Which expression is equivalent to  $2^{-2} \times 2^{-3}$ ?

- A  $2^6$
- B  $2^{-5}$
- C  $2^{-6}$

84. The area of the parallelogram below is 184 units<sup>2</sup>.



What is the perimeter of the parallelogram?

- A 23 cm
- B 33 cm
- C 41 cm
- D 66 cm



85. Jill is an electrician. Her charges per hour are listed in the table below.

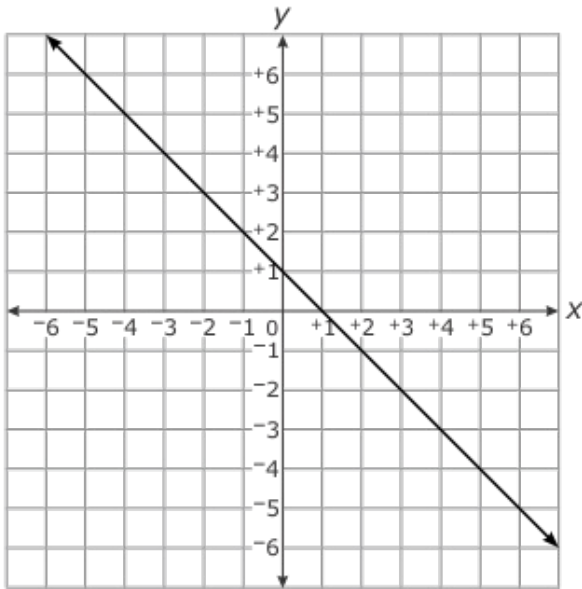
Hours	Charge per hour
First hour	\$65
Second hour	\$55
Each additional hour or part thereof	\$45

Jill earned \$322.50 for electrical work. How many hours did Jill work?

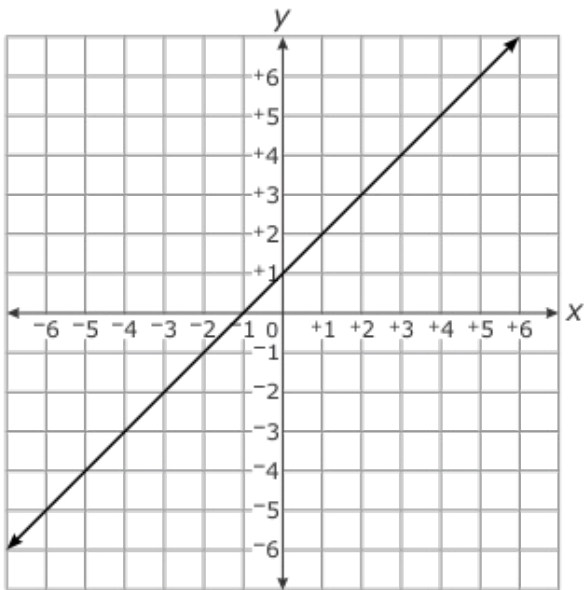
- A. 4.5
- B. 5
- C. 6.5
- D. 7

86. Which graph shows the line of the equation  $y = -x + 1$ ?

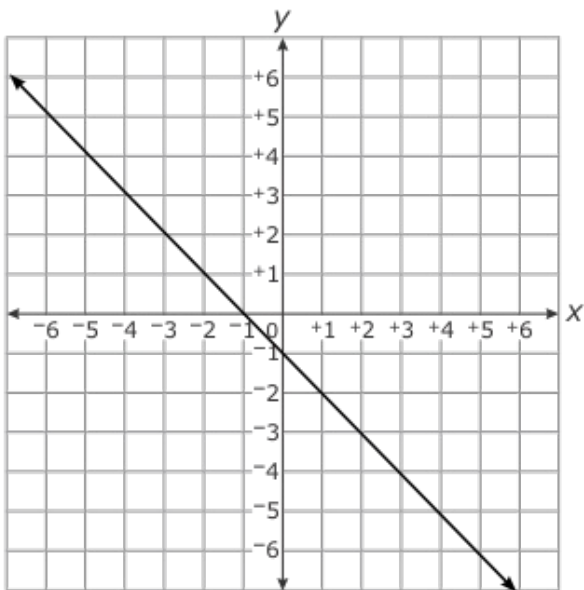
A.



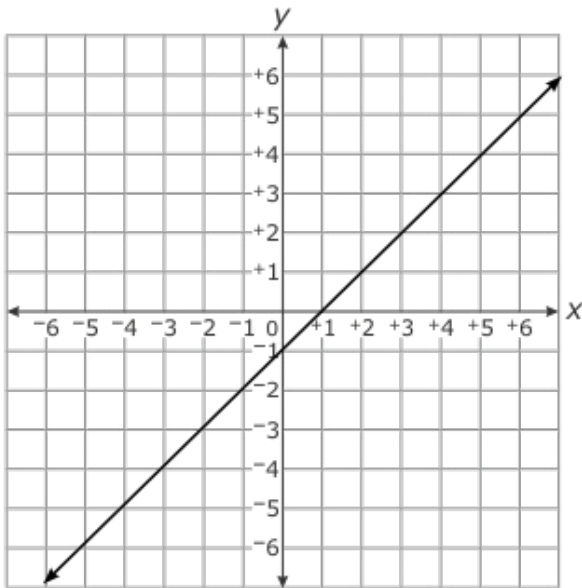
B.



C.

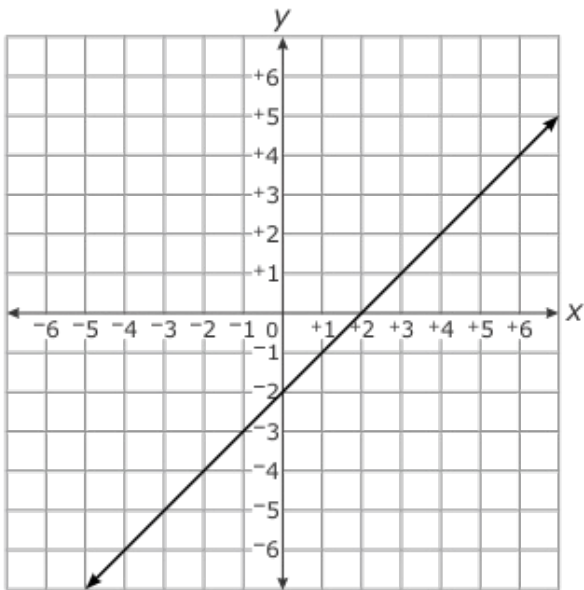


D.

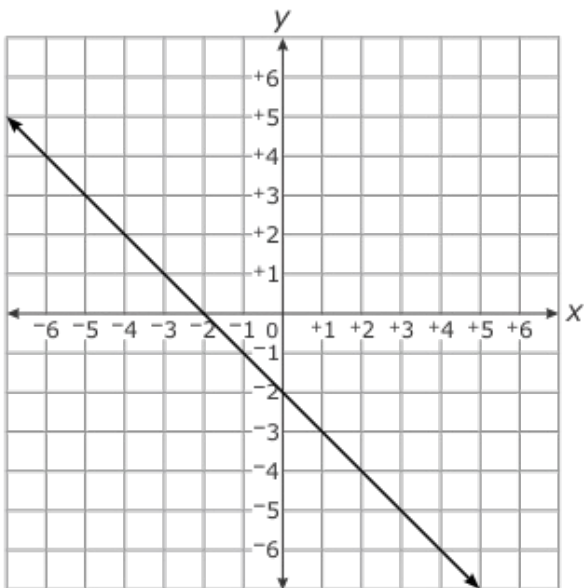


87. Sam stores his coin collection in a cube-shaped box that has a volume of  $27 \text{ in.}^3$ . He moves the coins into a larger cube-shaped box that has a volume of  $729 \text{ in.}^3$ . What is the difference between the edge lengths of the two boxes?
- A. 6 in.
  - B. 9 in.
  - C. 22 in.
  - D. 27 in.
88. The lengths of the sides of triangle  $RST$  are consecutive odd integers. The perimeter of the triangle is 63 meters. What is the length of the longest side?
- A. 19 meters
  - B. 21 meters
  - C. 23 meters
  - D. 27 meters
89. Which is the graph of  $y = -x$  ?

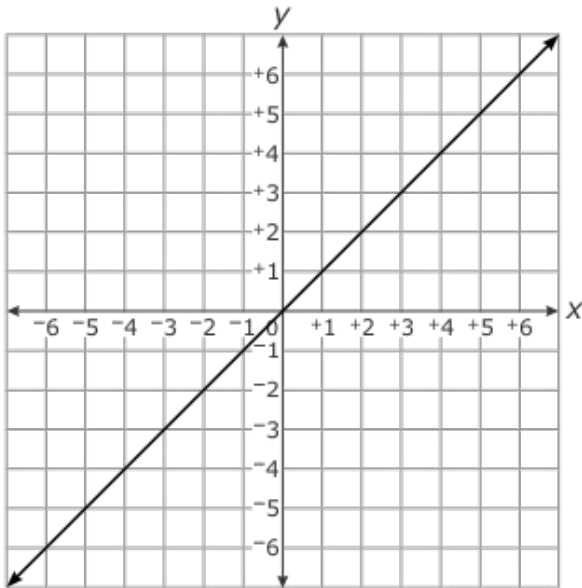
A.



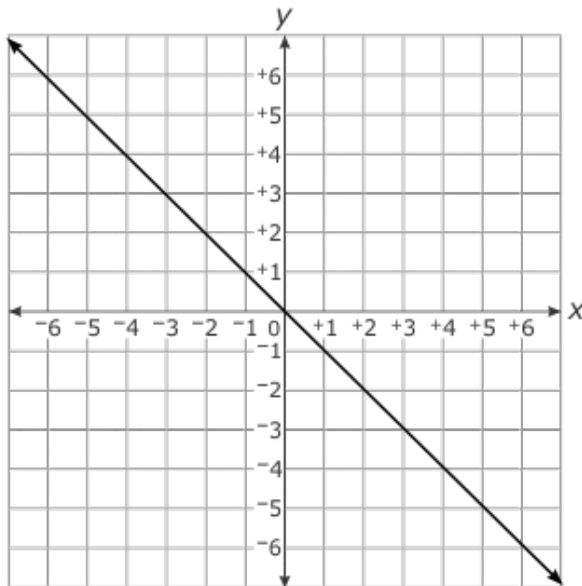
B.



C.

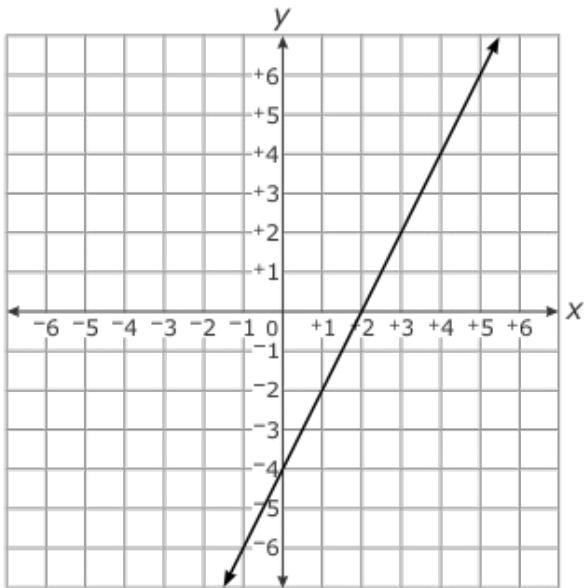


D.

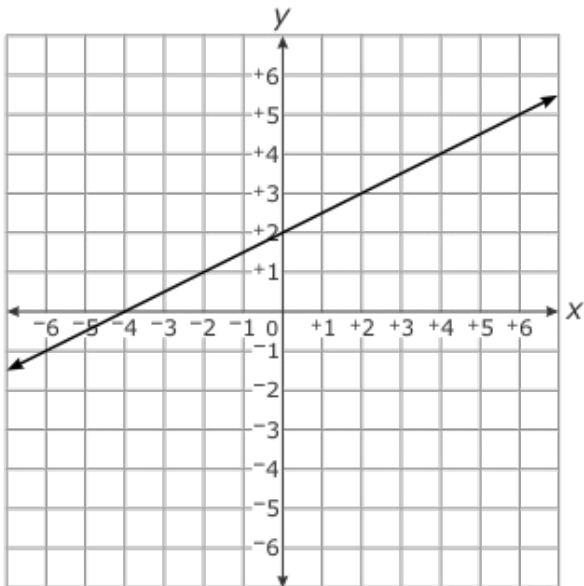


90. Which graph shows the line of the equation  $y = 2x - 4$ ?

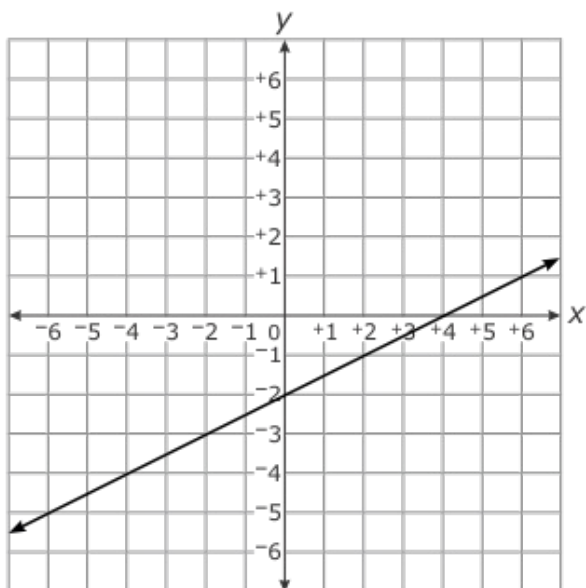
A.



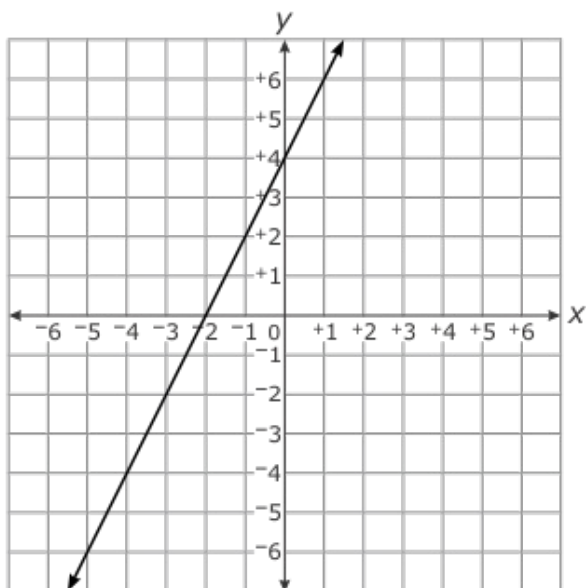
B.



C.



D.



91. What is the value of  $\sqrt[3]{\frac{8}{27}}$ ?

A.  $\frac{2}{3}$

B.  $\frac{4}{13}$

C.  $\frac{24}{81}$

D.  $\frac{2}{9}$

92. A store sells candy bars and packages of gum.

- The price of a candy bar is \$0.69, and a package of gum costs \$0.89.
- On Tuesday, the number of packages of gum sold was 2 less than 3 times the number of candy bars sold.
- The total amount of the sales was \$82.22, before tax.

How many packages of gum were sold?

A. 46

B. 52

C. 73

D. 82

93. A cube has a volume of  $343 \text{ cm}^3$ . What is the side length of the cube?

A. 7 cm

B. 19 cm

C. 57 cm

D. 114 cm



94. What is the sum of  $\sqrt{169}$  and  $\sqrt[3]{343}$  ?

- A. 20
- B. 32
- C. 170
- D. 199

95. What is the value of  $x$  in the equation  $-\frac{7}{4}x + 5 = \frac{2}{3}x - 9$  ?

- A.  $1\frac{19}{29}$
- B.  $3\frac{9}{13}$
- C.  $5\frac{23}{29}$
- D.  $12\frac{12}{13}$

96. Which statement is true about the equation below?

$$-5(2x + 8) = -2(5x + 8)$$

- A. The solution to the equation is greater than 0.
- B. The solution to the equation is less than 0.
- C. The equation has infinitely many solutions.
- D. The equation has no solution.

97. What is the value of the expression  $\frac{4^{-4}}{4^{-2}}$ ?

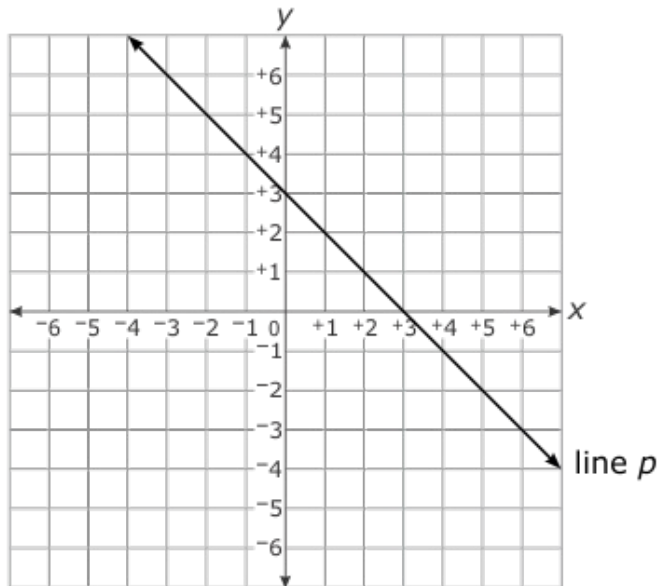
A.  $\frac{1}{16}$

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

C. 2

D. 16

98. Line  $p$  is graphed below. The equation for line  $n$  is  $y = 3x - 1$ . Line  $n$  will be graphed below.



What will be the point of intersection of lines  $p$  and  $n$ ?

A. (3, 0)

B. (0, 3)

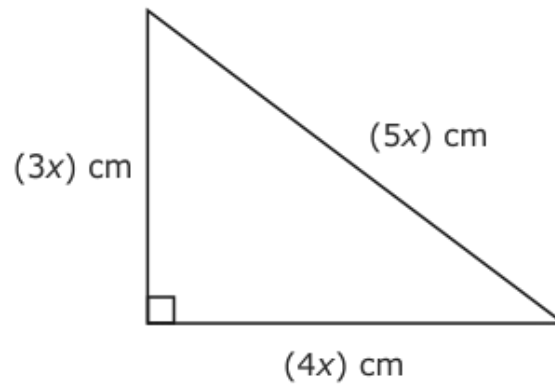
C. (1, 2)

D. (2, 1)

99. Which expression is equivalent to  $2^2 \times 2^3 \times 2^{-6}$ ?

- A.  $2^{11}$
- B.  $2^0$
- C.  $2^{-1}$
- D.  $2^{-36}$

100. The perimeter of the triangle below is 36 cm.

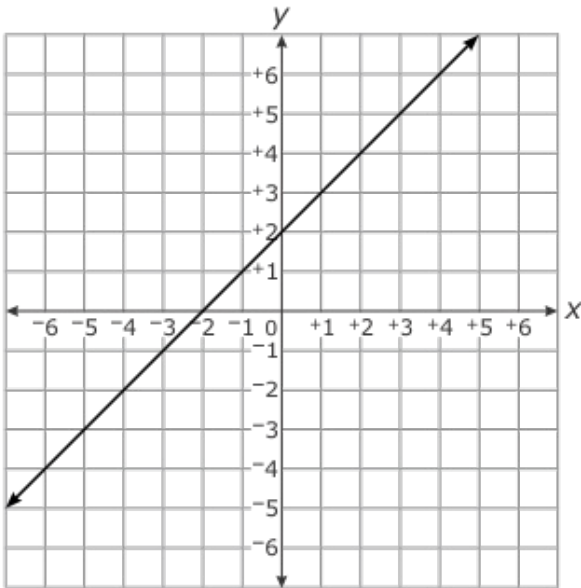


What is the value of  $x$ ?

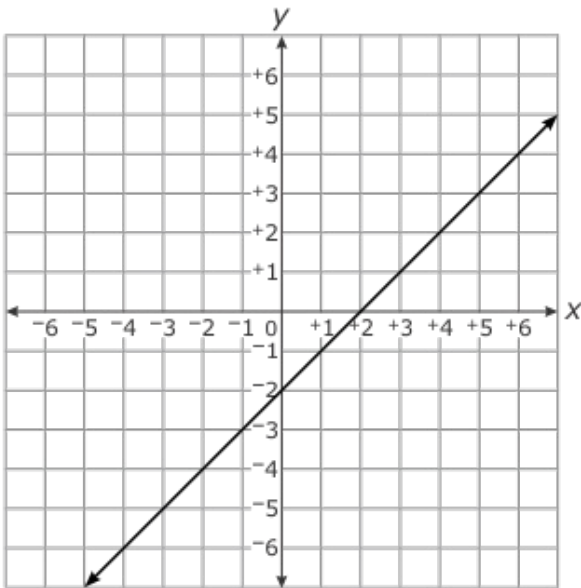
- A. 12
- B. 6
- C. 3

101. Which choice is the graph of  $y = x + 2$ ?

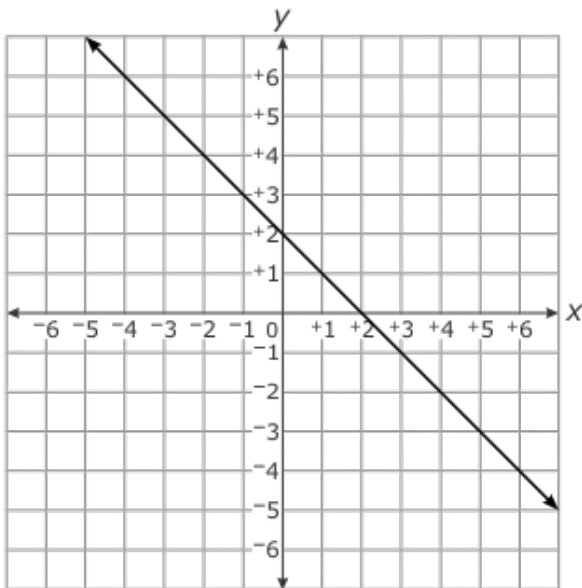
A.



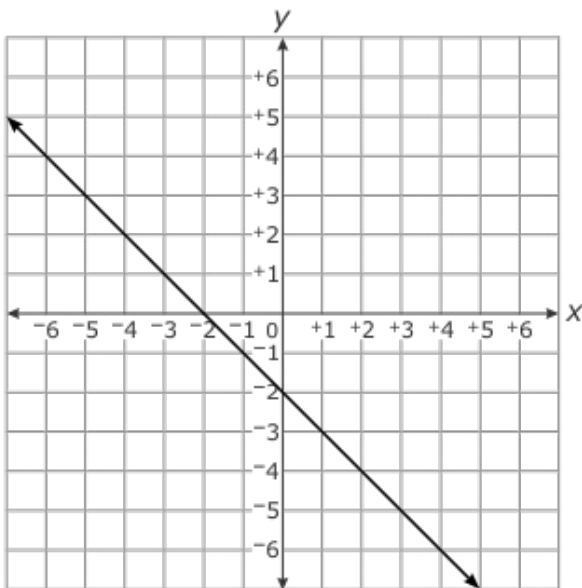
B.



C.



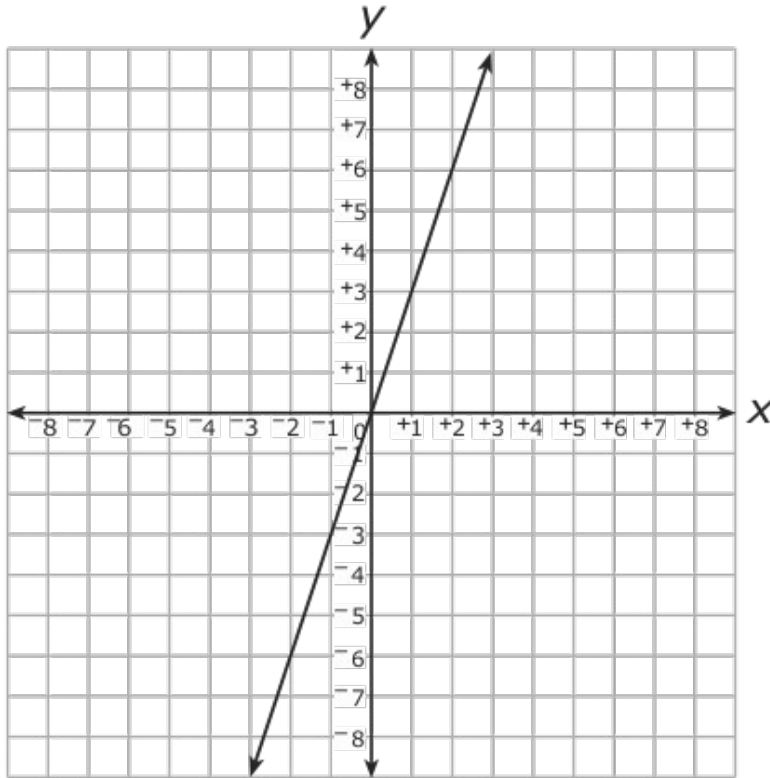
D.



102. What is the value of  $p$  in the equation  $3p + 10 = 7p - 26$ ?

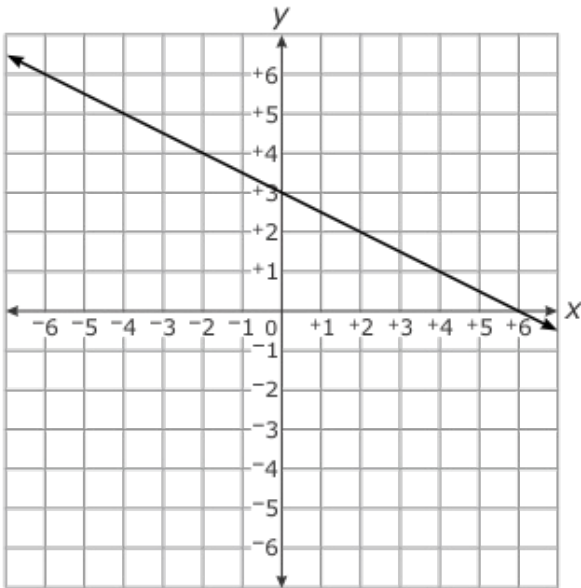
- A. -9
- B. -4
- C. 4
- D. 9

103. Which is an equation of the line graphed below?

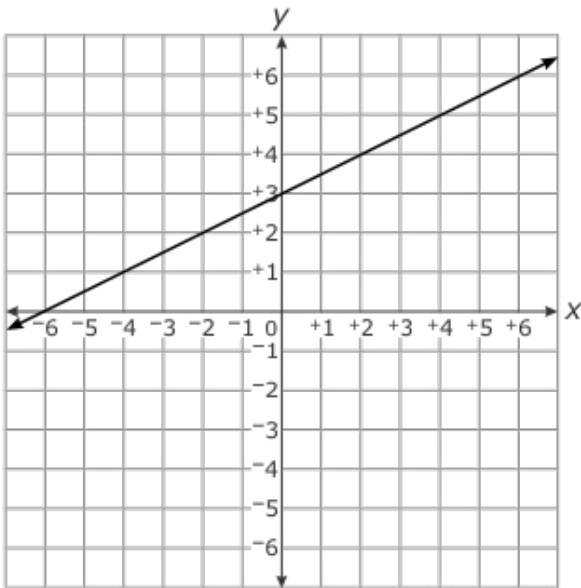


- A.  $y = -3x$
  - B.  $y = x + 3$
  - C.  $y = x - 3$
  - D.  $y = 3x$
104. The angles in a hexagon measure  $3x - 15$ ,  $4x - 2$ ,  $3x + 3$ ,  $4x - 8$ ,  $2x - 7$ , and  $2x + 11$ . The total of all the angles in a hexagon measure  $720^\circ$ . What is the measure of the largest angle in this hexagon?
- A.  $108^\circ$
  - B.  $120^\circ$
  - C.  $156^\circ$
  - D.  $162^\circ$
105. Which is the graph of  $y = -\frac{1}{2}x + 3$ ?

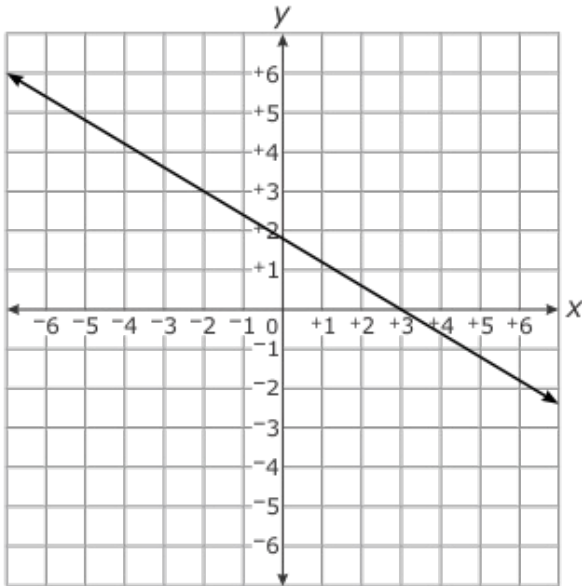
A.



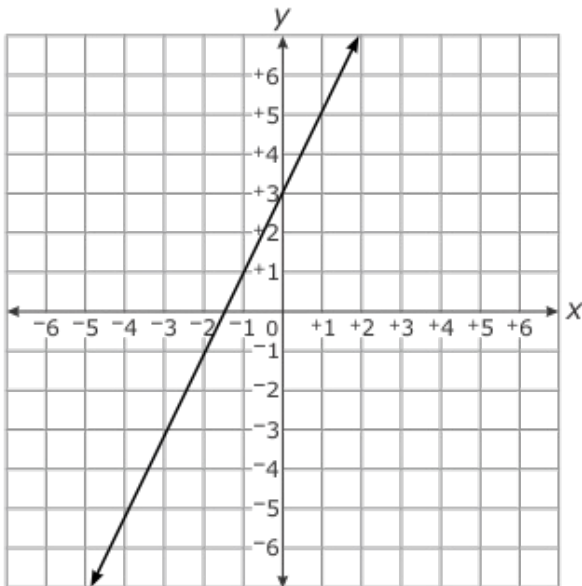
B.



C.



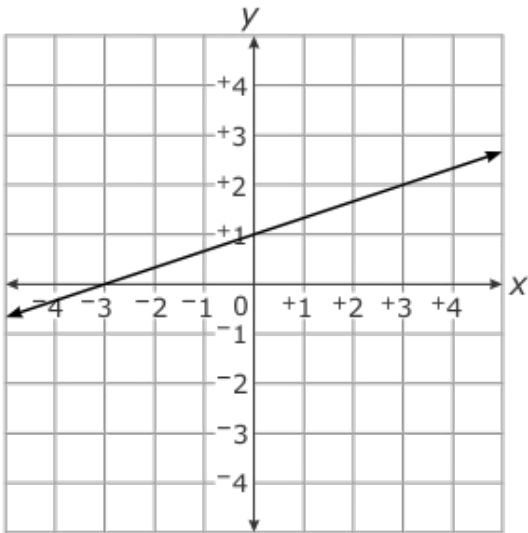
D.



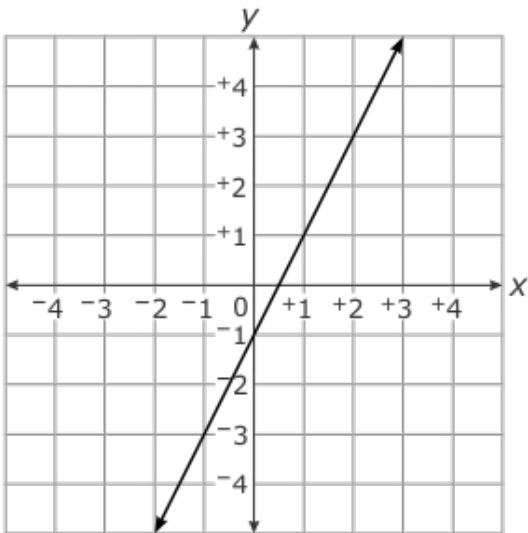
106. Which graph below has the greatest positive slope?



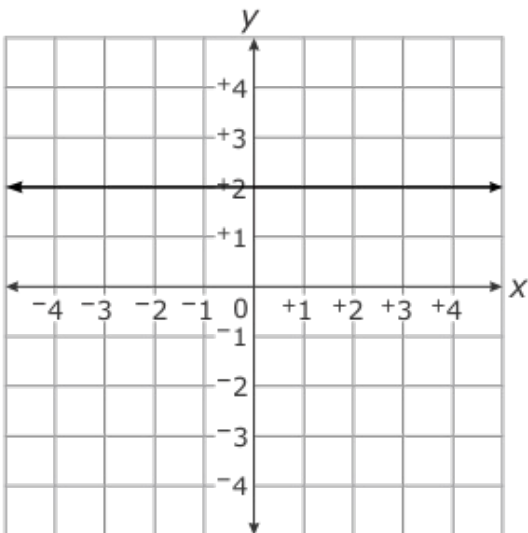
A.



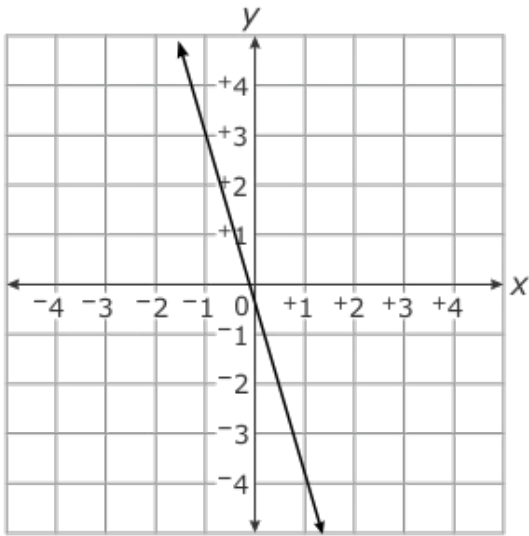
B.



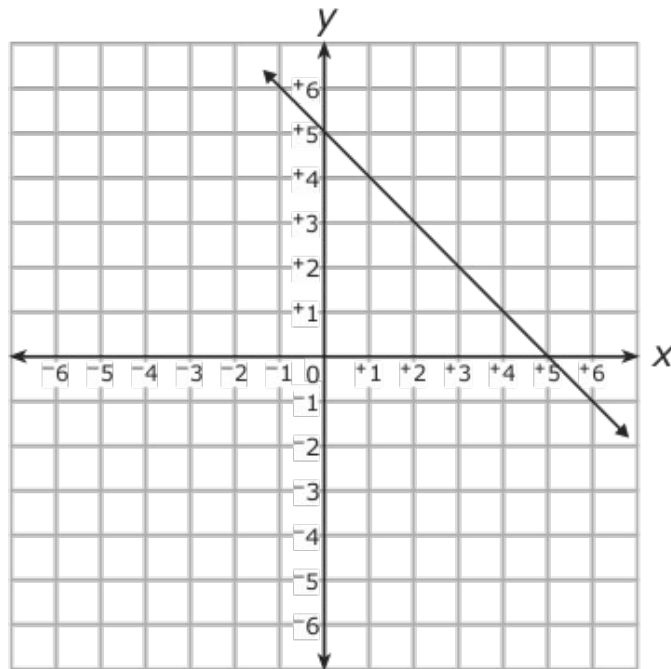
C.



D.

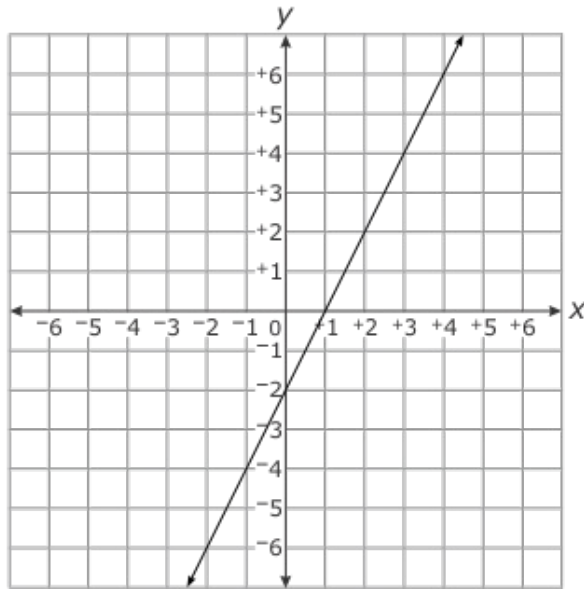


107. What is the slope of the line graphed below?



- A.  $-5$
- B.  $-1$
- C.  $1$
- D.  $5$

108. Which is an equation of the line graphed below?



- A.  $y = 0.5x - 2$
- B.  $y = 0.5x + 1$
- C.  $y = 2x - 2$
- D.  $y = 2x + 1$

109. What is the value of  $x$  in the equation  $x^3 = -27$ ?

- A. -9
- B. -3
- C. 3
- D. 9

110. What is the value of  $x$  in the equation  $x^2 = 196$ ?

- A. 6
- B. 14
- C. 49
- D. 98

111. Which expression is equivalent to  $(3 \times 10^{-2})(4.1 \times 10^5)$ ?
- A.  $1.23 \times 10^3$
  - B.  $1.23 \times 10^4$
  - C.  $1.23 \times 10^{-3}$
  - D.  $1.23 \times 10^{-4}$
112. How is 1,060,000,000 written in scientific notation?
- A.  $1.06 \times 10^7$
  - B.  $1.06 \times 10^8$
  - C.  $1.06 \times 10^9$
  - D.  $1.06 \times 10^{10}$
113. In 1993, there were more than 588 million arrivals and departures at the major United States airports. How is this number written in scientific notation?
- A.  $5.88 \times 10^6$
  - B.  $5.88 \times 10^8$
  - C.  $5.88 \times 10^9$
  - D.  $5.88 \times 10^{11}$
114. What is 76,200,000 written in scientific notation?
- A.  $762 \times 10^7$
  - B.  $7.62 \times 10^7$
  - C.  $76.2 \times 10^6$
  - D.  $7.62 \times 10^5$

115. What is the standard form of  $2.1 \times 10^{-5}$ ?
- A 0.000021
  - B 0.0000021
  - C 210,000
  - D 2,100,000
116. One microgram is equal to 0.000001 grams. Which represents this amount in scientific notation?
- A  $1 \times 10^{-8}$
  - B  $1 \times 10^{-7}$
  - C  $1 \times 10^{-6}$
  - D  $1 \times 10^{-5}$
117. The population in the United States increased by about  $1.5 \times 10^8$  people between 1900 and 1980. What is this number written in standard form?
- A 15,000,000
  - B 150,000,000
  - C 1,500,000,000
  - D 15,000,000,000
118. The diameter of a red blood cell is  $7.6 \times 10^{-4}$  cm. How is this number written in standard form?
- A 0.000076
  - B 0.00076
  - C 0.0076
  - D 0.076

119. Phone Company 1 charges a flat rate of \$25.00 a month for local calling, and \$0.05 per minute for each long distance call. Phone Company 2 charges a flat rate of \$20.00 a month for local calling, and \$0.10 per minute for long distance calling. After how many minutes of long distance calling do the phone companies charge an equal amount?
- A. 50 minutes
  - B. 100 minutes
  - C. 200 minutes
  - D. 300 minutes
120. Three times a number minus seven is the same as four times the same number plus two. What is the number?
- A. -9
  - B. -5
  - C. -2
  - D. -1
121. Human skin is approximately  $2.5 \times 10^{-2}$  m thick. How is this number written in standard form?
- A. 250
  - B. 0.25
  - C. 0.025
122. The population of a state is approximately  $5 \times 10^6$ . How is this population written in standard form?
- A. 5,000,000
  - B. 500,000
  - C. 0.000005

123. What is the standard form of  $6.75 \times 10^{-5}$ ?
- A 0.0000675
  - B 0.00000675
  - C -675,000
124. What is the quotient of  $1.26 \times 10^{-3}$  and 300?
- A  $4.2 \times 10^{-1}$
  - B  $4.2 \times 10^{-5}$
  - C  $4.2 \times 10^{-6}$
125. What is the product of 40,000 and  $2 \times 10^4$ ?
- A 800,000,000
  - B 80,000,000
  - C 8,000,000
126. What is the solution to  $\frac{4.2 \times 10^3}{3 \times 10^{-1}}$  ?
- A 14,000
  - B 1,400
  - C 140
127. Which expression is equivalent to  $(0.000867) \div (2.89 \times 10^{-2})$ ?
- A  $3 \times 10^2$
  - B  $3 \times 10^{-2}$
  - C  $3 \times 10^{-6}$

128. What is the solution to  $(2 \times 10^6) \div (5 \times 10^8)$ ?

- A 40
- B. 0.04
- C. 0.004

129. What is the solution to  $(1.1 \times 10^9)(5 \times 10^{-6})$ ?

- A 0.0055
- B. 5,500
- C. 55,000

130. What is the value of  $(6 \times 10^5)(0.75)$ ?

- A 4,500,000
- B. 450,000
- C. 45,000

131. Which expression is equivalent to  $6^3 \div 6^5$ ?

- A  $6^{-2}$
- B.  $6^2$
- C.  $6^8$

132. What is the value of the expression  $4^3 \times 4^{-3}$ ?

- A 0
- B. 1
- C. 4

133. Which expression is equivalent to  $5^6 \div 5^2$ ?

- A  $5^3$
- B.  $5^4$
- C.  $5^8$



134. Two companies provide home Internet services.

- The first company charges a one-time fee of \$55 for the equipment, plus \$30 per month for the service.
- The second company charges a one-time fee of \$25 for the equipment, plus \$45 per month for the service.

After how many months will the services of the two companies cost the same?

- A. 2 months
- B. 4 months
- C. 5 months

135. Which expression is equivalent to  $3^2 \div 3^5$ ?

- A.  $3^7$
- B.  $3^3$
- C.  $3^{-3}$

136. The Washington Monument is about  $5.6 \times 10^2$  feet tall. The carving of George Washington at Mount Rushmore is 60 feet tall. **About** how many times larger is the Washington Monument than the carving of George Washington at Mount Rushmore?

- A. 9 times larger
- B. 11 times larger
- C. 12 times larger

137. What is the value of the expression  $(2^3)^2 \div 2^2$ ?

- A. 2
- B. 8
- C. 16

138. Which expression is equivalent to  $\frac{9^3}{9^5}$  ?

A.  $\frac{1}{81}$

B.  $\frac{1}{18}$

C. 81

139. In one year, the number of visitors to an amusement park in Florida was  $1.8 \times 10^7$ . In the same year, the number of visitors to an amusement park in California was  $6 \times 10^5$ . **About** how many times more visitors attended the park in Florida than the park in California?

A. 3 times more visitors

B. 30 times more visitors

C. 300 times more visitors

140. What is the value of  $(5^3) \times (5^{-4})$ ?

A. -5

B.  $\frac{1}{5}$

C. 5

141. Which expression is equivalent to  $(9^2)^5$ ?

A.  $9^3$

B.  $9^7$

C.  $9^{10}$

142. France has a population of about 6.5 million people. China has a population of about  $1.3 \times 10^9$  people. **About** how many times larger is the population of China than the population of France?
- A. 20 times larger
  - B. 50 times larger
  - C. 200 times larger
143. What is the value of  $(-2)^2 \times 4^2$ ?
- A. -32
  - B. 32
  - C. 64
144. What is the value of  $(-6)^4 \div (-6)^3$ ?
- A. -6
  - B.  $\frac{1}{6}$
  - C. 6
145. What is the value of  $4^0 \div 4^2$ ?
- A.  $\frac{1}{16}$
  - B. 0
  - C. 16
146. What is the value of the expression  $3^2 \times 3^0$ ?
- A. 0
  - B. 6
  - C. 9

147. Which expression is equivalent to  $(4^2)^3 \times 4^4$ ?

- A.  $4^9$
- B.  $4^{10}$
- C.  $4^{24}$

148. Which expression is equivalent to  $8^5 \div 8^2$ ?

- A.  $8^{10}$
- B.  $8^7$
- C.  $8^3$

149. What is the value of  $2^4 \times 2^{-6}$ ?

- A.  $\frac{1}{4}$
- B.  $\frac{1}{2}$
- C. 4

150. The perimeter of a rectangle is 60 inches. The length of the rectangle is 2 times the width. What is the length of the rectangle?

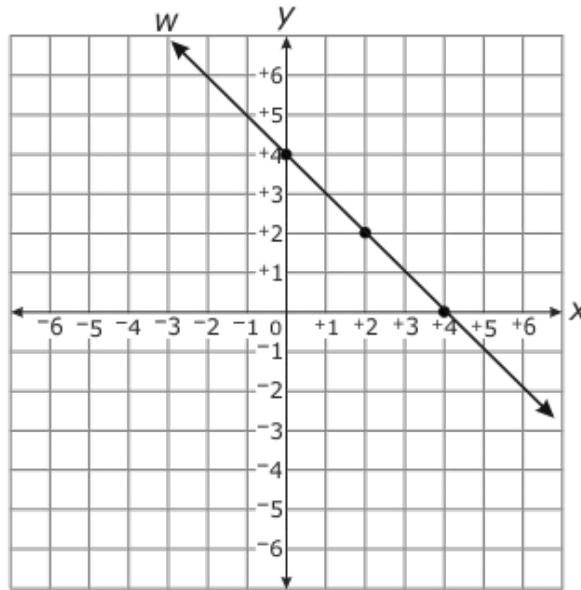
- A. 10 inches
- B. 20 inches
- C. 30 inches

151. The area of a square is  $100 \text{ cm}^2$ . What is the length of one side of the square?

- A. 50 cm
- B. 25 cm
- C. 10 cm

152. John purchased 5 pencils and 3 pens at the school store for \$2.00. Pens cost 5 times more than pencils. How much does 1 pen cost?
- A. \$0.25
  - B. \$0.30
  - C. \$0.50
153. Six times a number increased by three is equal to three times the same number minus six. What is the value of the number?
- A. -3
  - B. -1
  - C. 1
154. Line  $m$  is represented by the equation  $y = 2x$ . Line  $p$  goes through the points  $(-3, 0)$  and  $(1, -4)$ . What is the point of intersection for lines  $m$  and  $p$ ?
- A.  $(2, 4)$
  - B.  $(0, 0)$
  - C.  $(-1, -2)$

155. Line  $w$  is graphed below. Line  $z$  will be graphed below. The equation for line  $z$  is  $y = 3x$ .



What is the point of intersection of lines  $w$  and  $z$ ?

- A. (1, 3)
  - B. (2, 2)
  - C. (3, 1)
156. The drama club at a school sold tickets to a play.
- Tickets cost \$5 for adults and \$2 for children.
  - Twice as many children's tickets as adult tickets were sold.
  - The drama club collected \$540 in ticket sales.

How many adult tickets were sold?

- A. 50
- B. 60
- C. 75

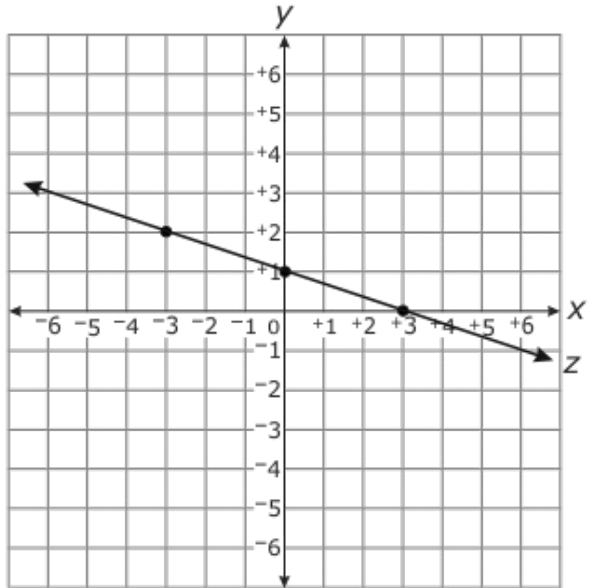
157. Which equation is equivalent to  $x^3 = 216$ ?

A.  $x = 216 \div 3$

B.  $x = 216 \times 3$

C.  $x = \sqrt[3]{216}$

158. Line  $z$  is graphed below. Line  $k$ , containing the points  $(2, 2)$  and  $(5, -4)$ , will be graphed below.



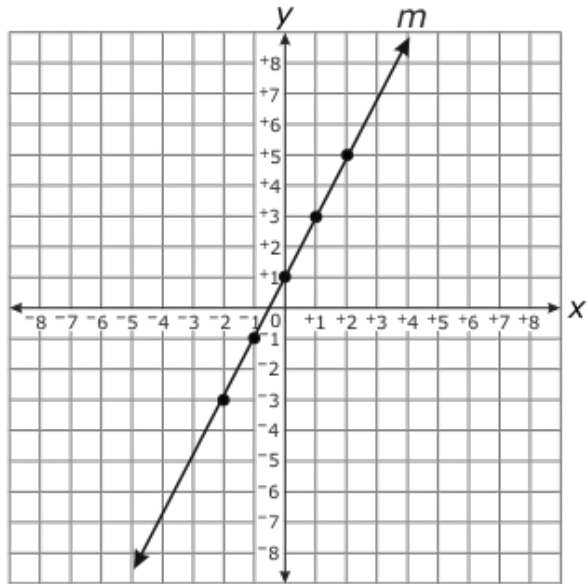
What is the point of intersection of lines  $z$  and  $k$ ?

A.  $(-3, 2)$

B.  $(0, 1)$

C.  $(3, 0)$

159. Line  $m$  is graphed below. Line  $n$  will be graphed below. The equation for line  $n$  is  $y = -x + 4$ .



What will be the point of intersection of lines  $m$  and  $n$ ?

- A.  $(0, 4)$
  - B.  $(1, 3)$
  - C.  $(2, 5)$
160. A system of equations is shown below.

$$\begin{aligned}y &= x + 15 \\ y &= 3x + 7\end{aligned}$$

What is the value of  $y$  in the solution to the system?

- A. 16
- B. 17
- C. 19



161. A system of equations is shown below.

$$\begin{aligned}y &= 2x - 6 \\x + 2y &= 13\end{aligned}$$

What is the solution to the system?

- A (3, 5)
- B (4, 2)
- C (5, 4)

162. What is the product of  $(5.4 \times 10^3)$  and  $(3.5 \times 10^{-6})$ ?

- A  $1.89 \times 10^{-2}$
- B  $1.89 \times 10^{-3}$
- C  $1.89 \times 10^{-4}$

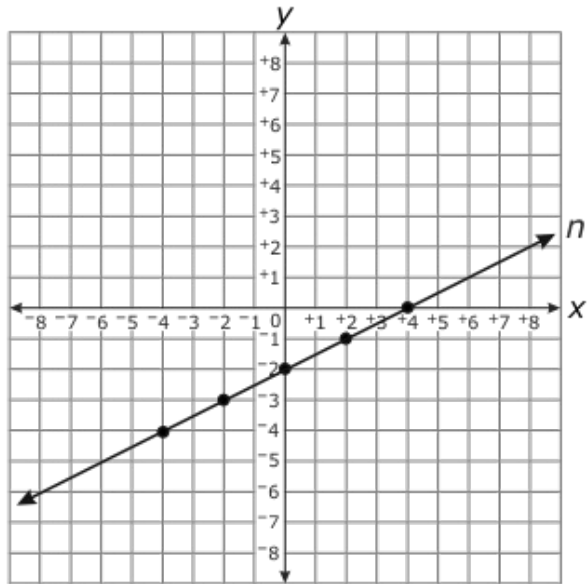
163. Which expression is equivalent to  $(6.25 \times 10^3) \div (1.25 \times 10^6)$ ?

- A  $5 \times 10^9$
- B  $5 \times 10^2$
- C  $5 \times 10^{-3}$

164. What is the value of  $\frac{(2.8 \times 10^3)}{4}$  ?

- A 70
- B 700
- C 7,000

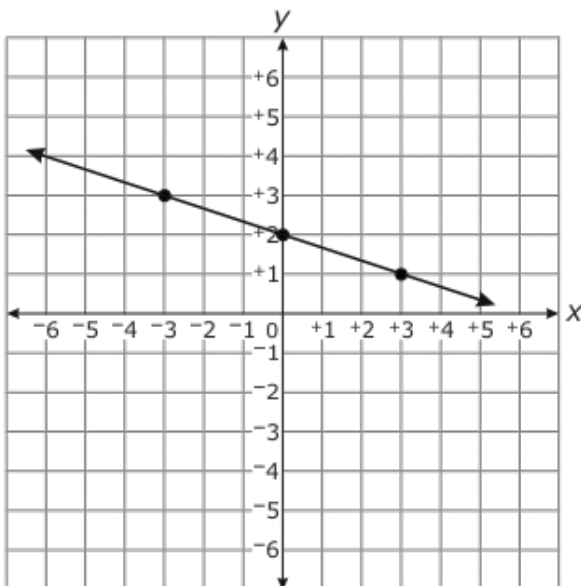
165. Line  $n$  is graphed below. Line  $p$  will be graphed below. Line  $p$  goes through the points  $(-4, 0)$  and  $(0, -6)$ .



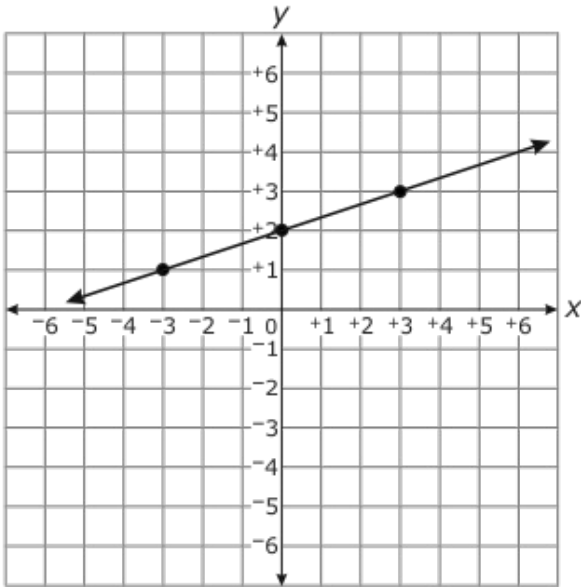
What will be the point of intersection of lines  $n$  and  $p$ ?

- A.  $(-1, -3)$
  - B.  $(-2, -3)$
  - C.  $(-3, -2)$
166. Which shows the graph of the equation  $y = -\frac{1}{3}x + 2$ ?

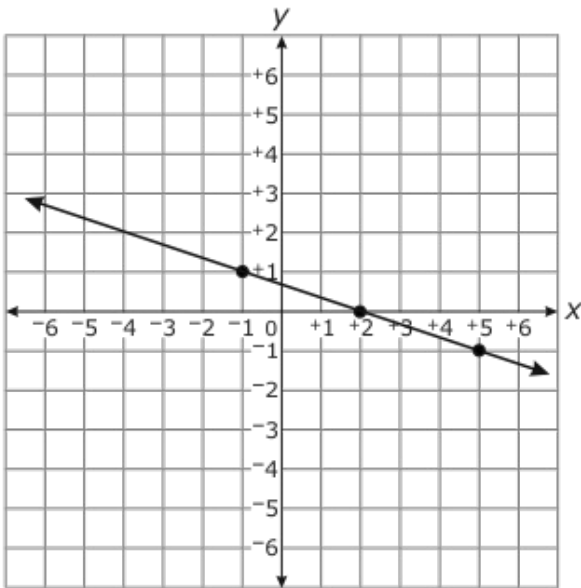
A.



B.

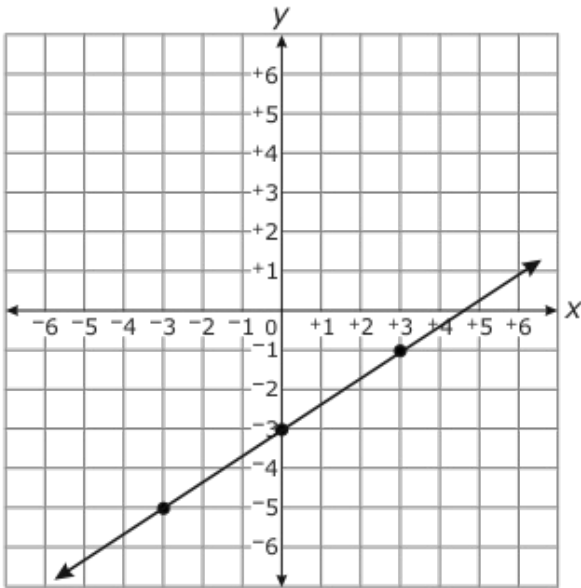


C.

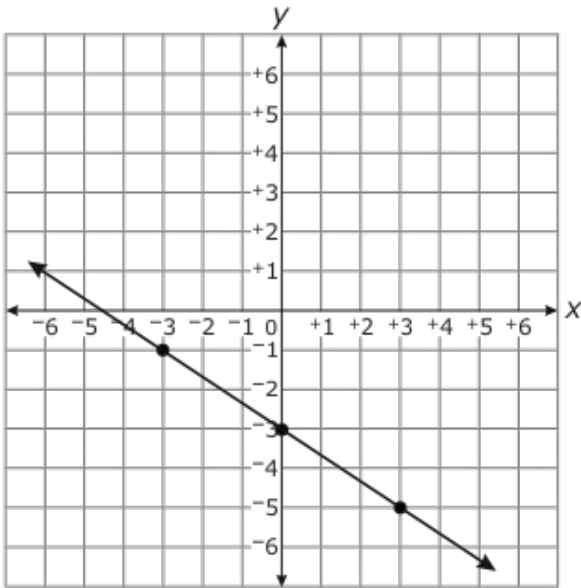


167. Which shows the graph of the equation  $y = \frac{2}{3}x - 3$ ?

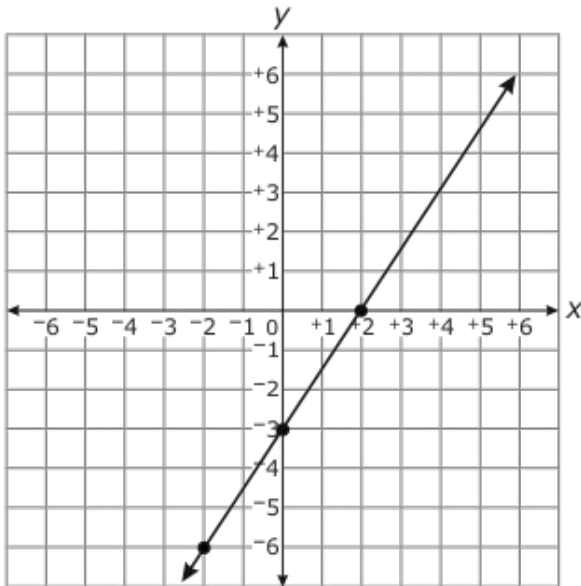
A.



B.



C.



168. The volume of a cube is  $1,000 \text{ cm}^3$ . What is the measure of each side of the cube?

- A. 10 cm
- B. 100 cm
- C. 333 cm

169. What is the value of  $x$  in the equation  $x^3 = \frac{8}{27}$ ?

- A.  $\frac{2}{3}$
- B.  $\frac{3}{9}$
- C.  $\frac{24}{81}$

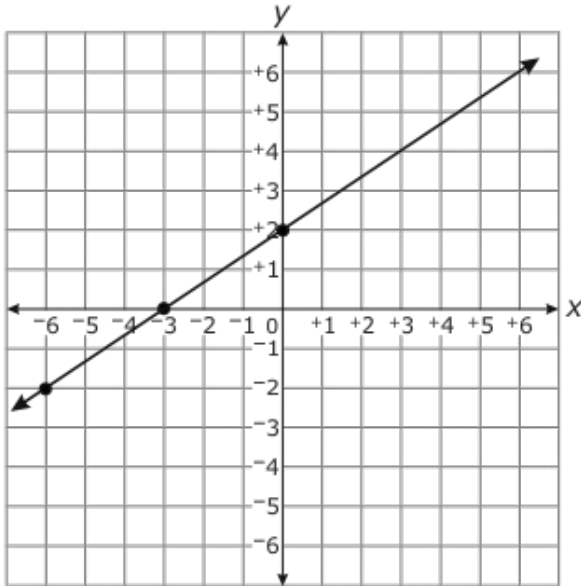
170. What is the value of  $\sqrt{0.49}$ ?

- A. 7
- B. 0.7
- C. 0.07

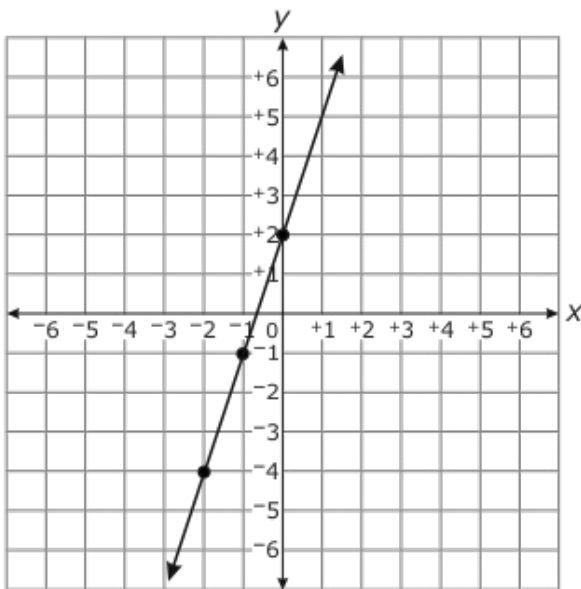
171. Line  $g$  goes through the points  $(1, 5)$  and  $(7, 1)$ . Line  $h$  goes through the points  $(0, 1)$  and  $(6, 4)$ . What is the point of intersection for lines  $g$  and  $h$ ?
- A.  $(5, 2)$
  - B.  $(4, 3)$
  - C.  $(3, 4)$

172. Which shows the graph of the equation  $y = 3x + 2$ ?

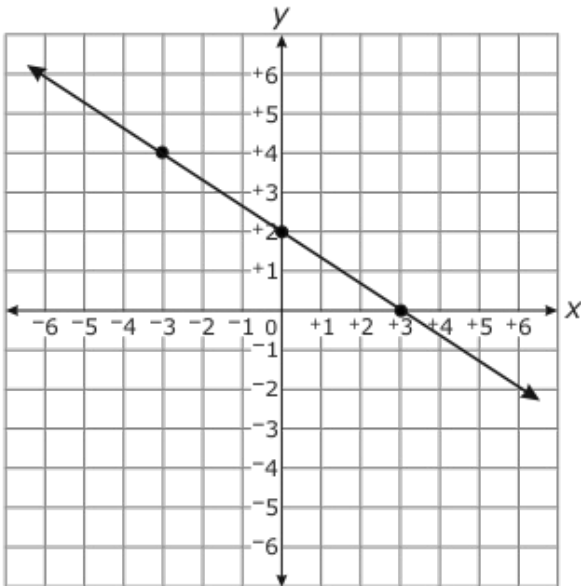
A.



B.

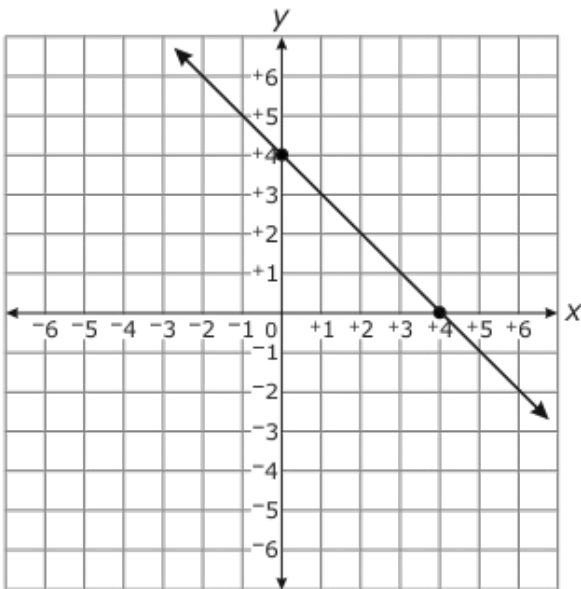


C.

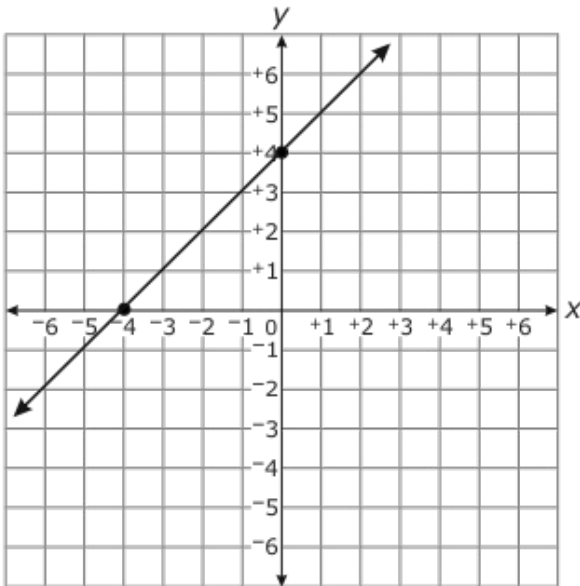


173. Which shows the graph of the equation  $y = x + 4$ ?

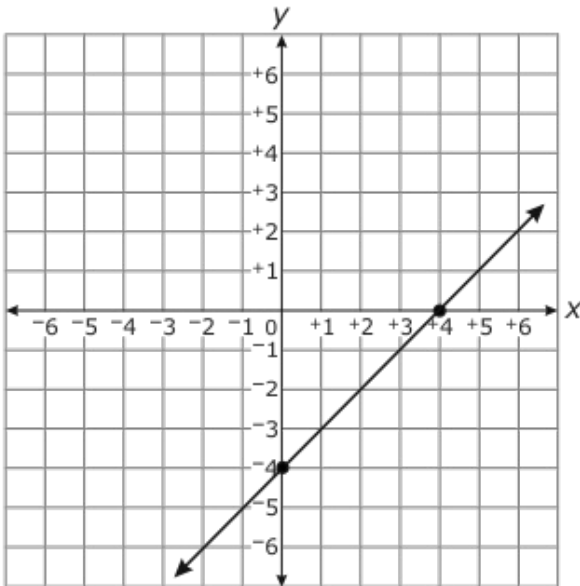
A.



B.



C.



174. What is the value of  $x$  in the equation  $x^2 = \frac{9}{16}$ ?

A.  $\frac{3}{16}$

B.  $\frac{5}{8}$

C.  $\frac{3}{4}$



175. A system of equations is shown below.

$$\begin{aligned}y &= 2x \\ 2x + y &= 8\end{aligned}$$

What is the value of  $x$  in the solution to the system?

- A. 2
- B. 3
- C. 4

176. A system of equations is shown below.

$$\begin{aligned}y &= 2x + 4 \\ y &= -3x - 11\end{aligned}$$

What is the solution to the system?

- A.  $(-3, -2)$
- B.  $(-2, 0)$
- C.  $(3, 10)$

177. What is the value of  $x$  in the equation  $x^2 = 64$ ?

- A. 4
- B. 8
- C. 32

178. A system of equations is shown below.

$$\begin{aligned}y &= 3x + 1 \\ y &= x - 3\end{aligned}$$

What is the value of  $x$  in the solution to the system?

- A. -1
- B. -2
- C. -5

179. A system of equations is shown below.

$$\begin{aligned}y &= -2x \\ 3x - y &= 5\end{aligned}$$

What is the solution to the system of equations?

- A.  $(1, -2)$
- B.  $(2, -4)$
- C.  $(5, -10)$

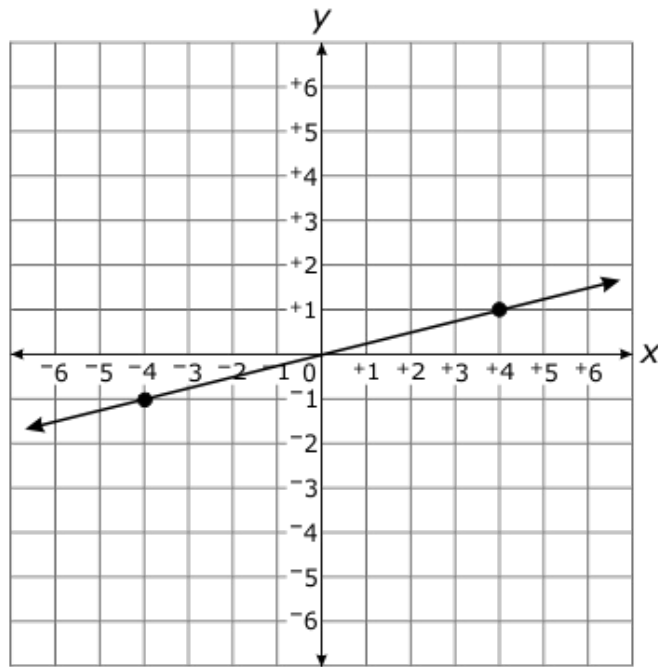
180. Maria bought 3 pounds of apples and 4 pounds of bananas. She spent \$5.70, before taxes. Apples cost \$0.50 more per pound than bananas. What is the cost for 1 pound of bananas?

- A. \$0.60
- B. \$0.50
- C. \$0.30

181. Brittany bought 6 tulip plants and 4 rose bushes for a total of \$21. Rose bushes cost twice as much as tulip plants. What was the cost of each tulip plant?

- A. \$1.50
- B. \$2.10
- C. \$3.00

182. Which is an equation of the line graphed below?



- A  $y = x + 4$
- B  $y = \frac{1}{4}x$
- C  $y = -\frac{1}{4}x$

183. How is 0.000004 written in scientific notation?

- A  $4 \times 10^{-6}$
- B  $4 \times 10^{-5}$
- C  $4 \times 10^6$

184. What is the value of  $\sqrt[3]{8}$ ?

- A 2
- B 3
- C 4

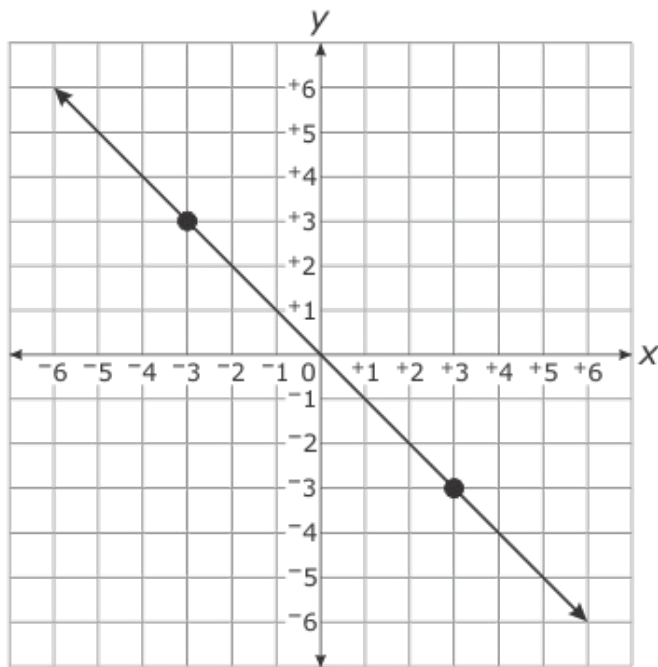
185. What is the value of  $\sqrt[3]{27}$ ?

- A. 3
- B. 9
- C. 13

186. The top of a square table has an area of  $144 \text{ in.}^2$ . What is the length of one side of the table?

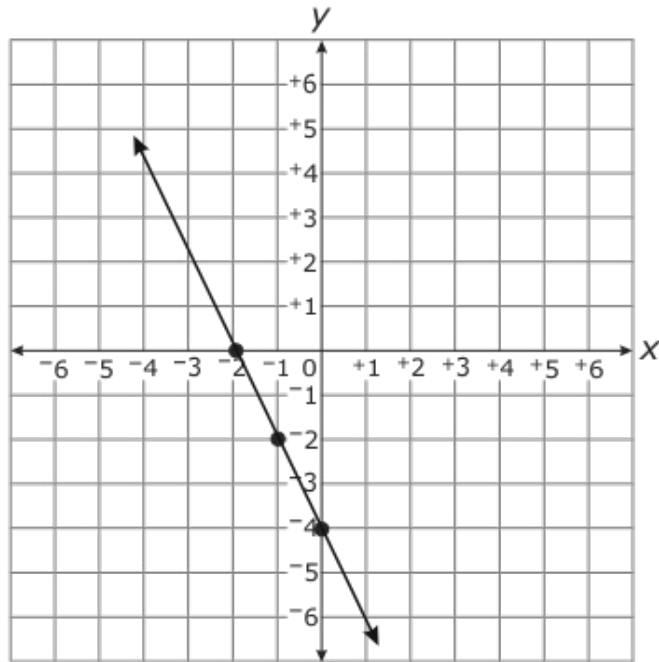
- A. 12 in.
- B. 36 in.
- C. 72 in.

187. Which is an equation of the line graphed below?



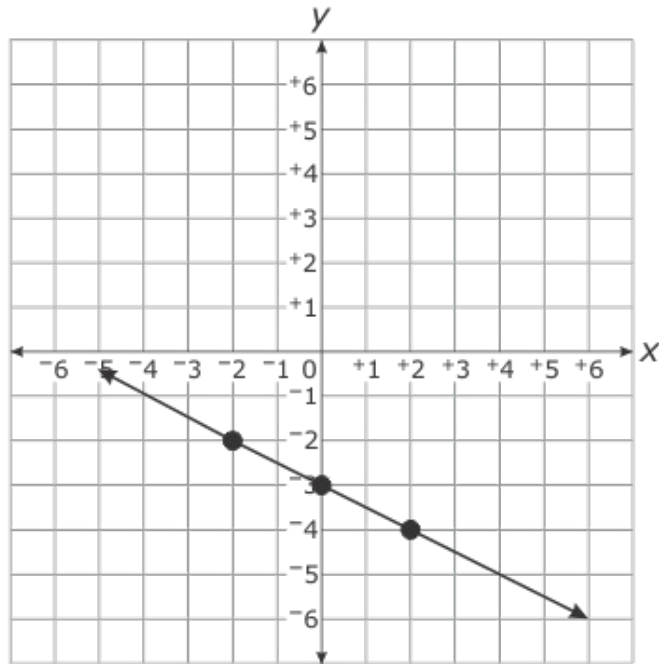
- A.  $y = x + 1$
- B.  $y = x$
- C.  $y = -x$

188. Which is an equation of the line graphed below?



- A.  $y = -2x - 4$
- B.  $y = -\frac{1}{2}x - 4$
- C.  $y = 2x - 4$

189. Which is an equation of the line graphed below?



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

190. Two amusement parks charge different amounts for tickets.

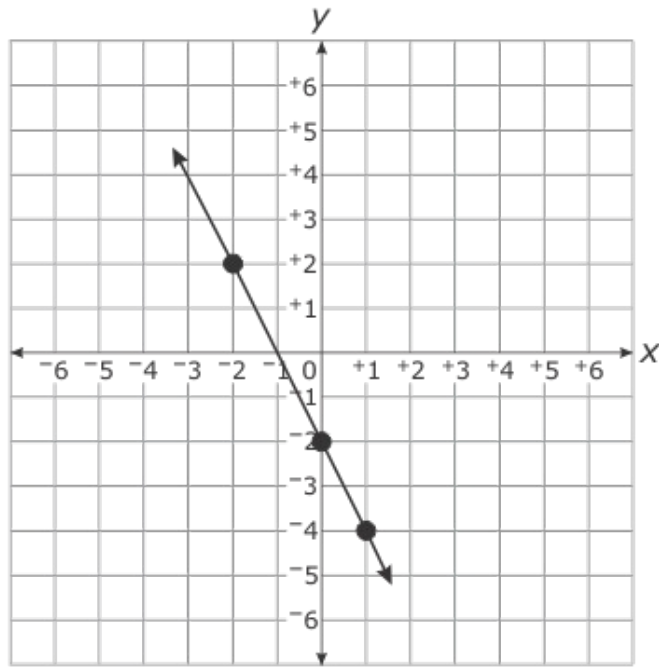
- Amusement park X charges \$126 for 3 tickets, or \$210 for 5 tickets.
- Amusement park Y uses the equation  $m = 39t$  to calculate the amount to charge a customer for  $t$  number of tickets purchased.

Which amusement park charges the least per ticket and by how much?

- A. Amusement park X charges \$3 less per ticket than amusement park Y.
- B. Amusement park Y charges \$3 less per ticket than amusement park X.
- C. The two amusement parks charge the same amount per ticket.

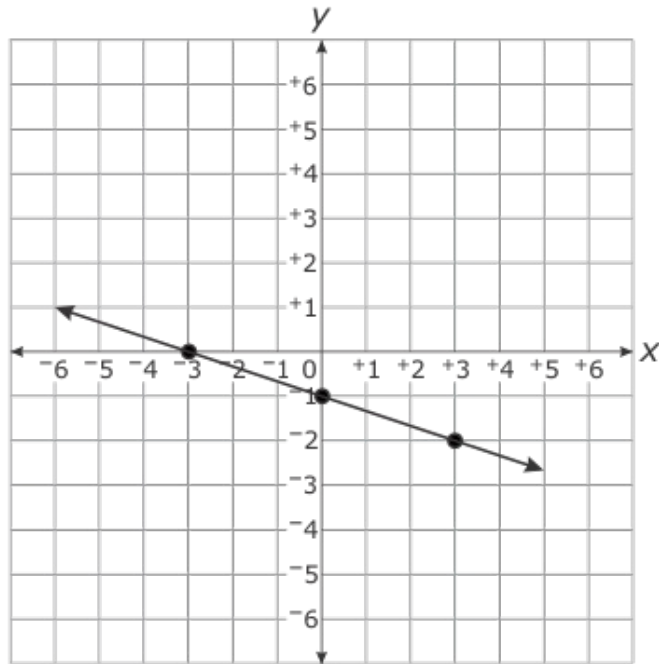
191.

Which is an equation of the line graphed below?



- A  $y = -2x - 2$
- B  $y = -2x - 1$
- C  $y = 2x - 2$

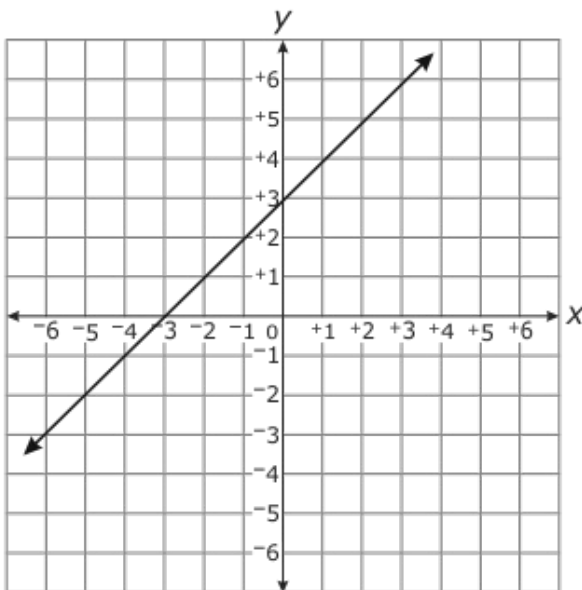
192. Which is an equation of the line graphed below?



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

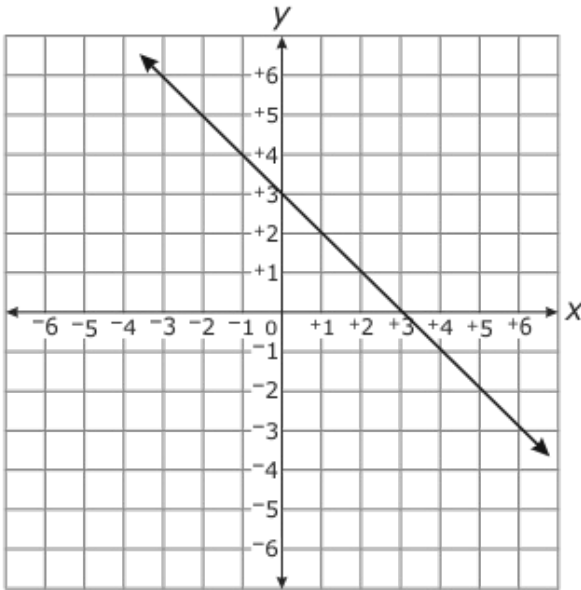
193. Which shows the graph of the equation  $y = -x + 3$ ?

A.

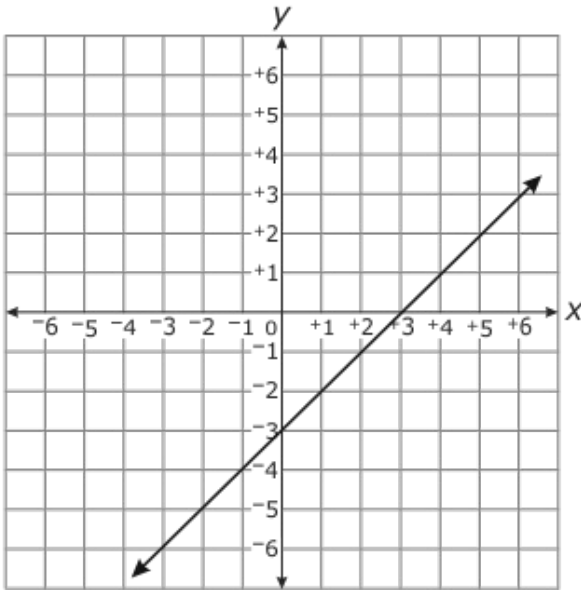




B.

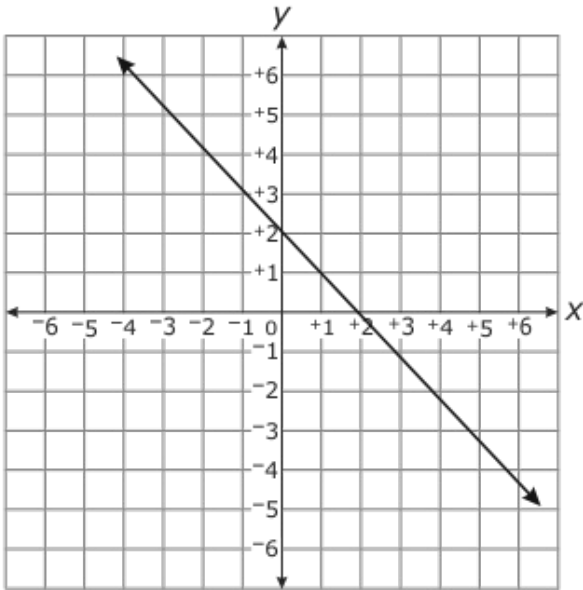


C.

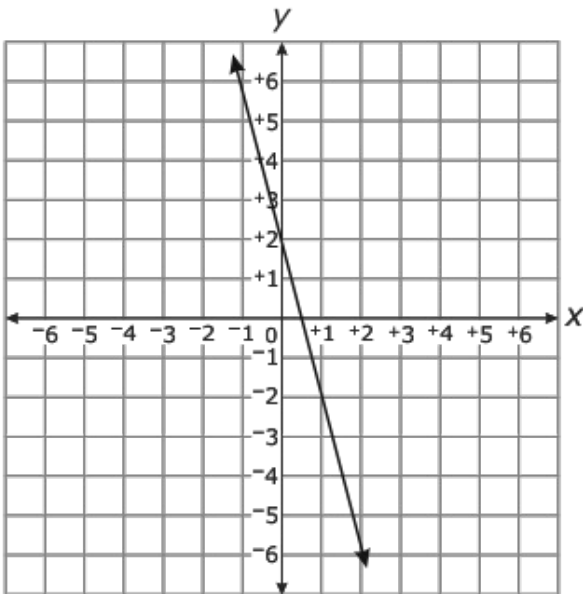


194. Which graph represents the equation  $y = -4x + 2$ ?

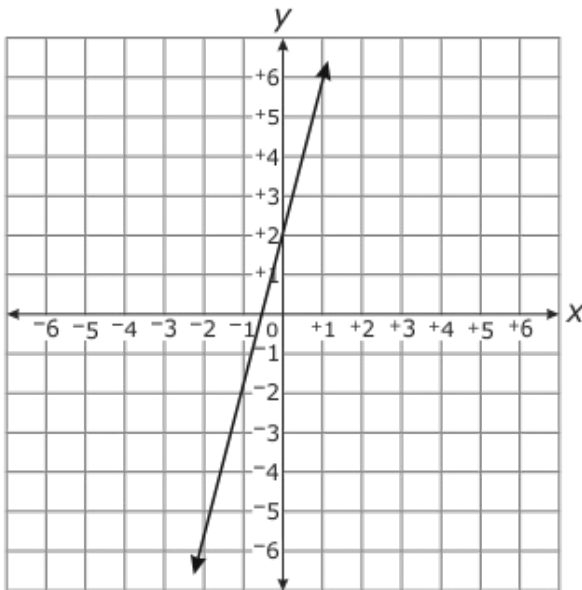
A.



B.



C.



195. What is the value of  $x$  in the equation  $\frac{1}{2}x + 3 = \frac{3}{4}x + 5$ ?

- A. -8
- B. -2
- C.  $-\frac{1}{2}$

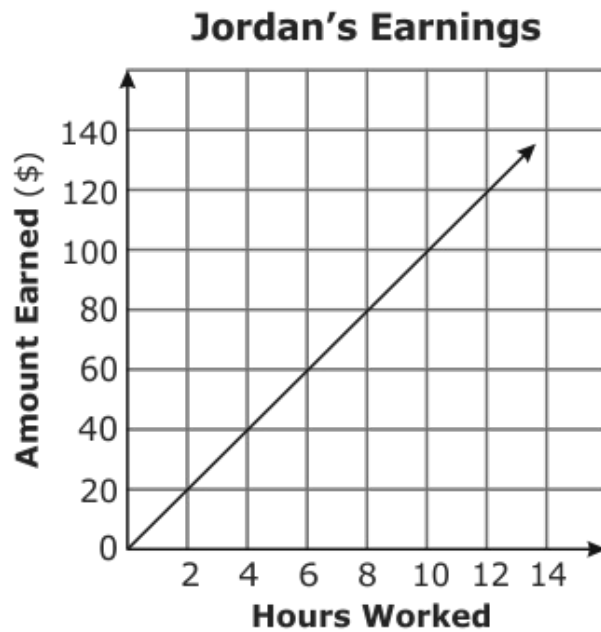
196. Mrs. Roberson's class has 4 more students than Mr. Donald's class. Together, the two classes have 58 students. How many students are in Mrs. Roberson's class?

- A. 29
- B. 31
- C. 33

197. A cube has a volume of 125 cubic inches. What is the side length of the cube?

- A. 5 inches
- B. 21 inches
- C. 42 inches

198. The equation  $y = 8x$  represents the amount of money Hannah earns after working  $x$  hours. The graph below shows the amount of money Jordan earns after working different numbers of hours.



Hannah and Jordan both worked 15 hours this week. Which statement is true?

- A. Hannah earned \$30 more than Jordan.
- B. Jordan earned \$30 more than Hannah.
- C. Jordan earned \$180 more than Hannah.

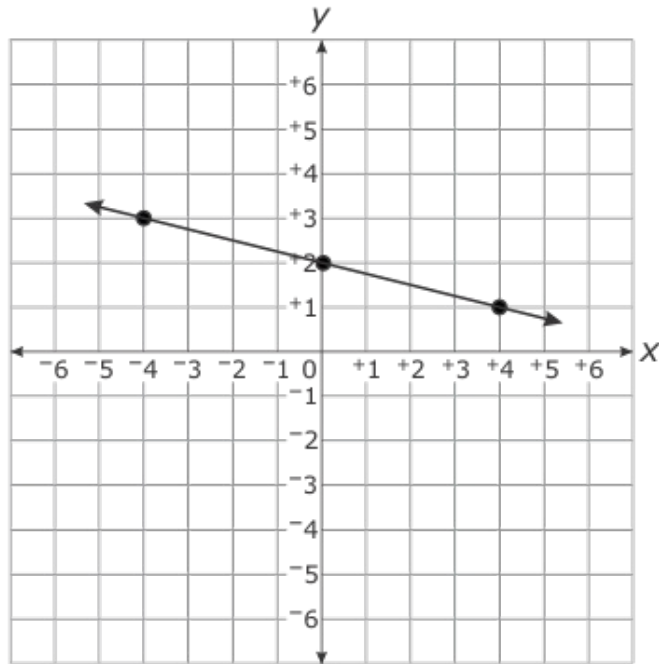
199. The equation  $y = 85x$  represents the cost to stay at Hotel *M* for  $x$  nights. The table below represents the cost to stay at Hotel *N* for different numbers of nights.

<b>Number of Nights</b>	<b>Cost</b>
2	\$190
4	\$380
6	\$570

Which statement is true?

- A. Hotel *M* costs \$10 more per night than Hotel *N*.
- B. Hotel *N* costs \$10 more per night than Hotel *M*.
- C. Hotel *N* costs \$95 more per night than Hotel *M*.

200. Which is an equation of the line graphed below?



- A  $y = 4x + 2$
- B  $y = \frac{1}{4}x + 2$
- C  $y = -\frac{1}{4}x + 2$

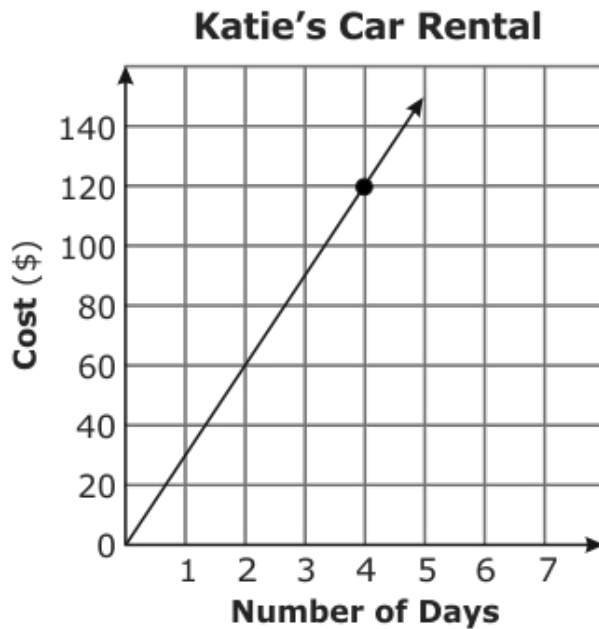
201. Two stores sell peanut butter.

- At Store R, 18 ounces of peanut butter costs \$3.06, and 40 ounces of peanut butter costs \$6.80.
- At Store T, the equation  $y = 0.20x$  represents the cost of  $x$  ounces of peanut butter.

What is the difference in the cost of 1 ounce of peanut butter at the two stores?

- A \$0.01
- B \$0.02
- C \$0.03

202. The average distance between Earth and the moon is about  $3.85 \times 10^5$  kilometers. A space shuttle travels from Earth to the moon and back. **About** how far did the space shuttle travel?
- A.  $3.85 \times 10^{10}$  kilometers
  - B.  $7.7 \times 10^7$  kilometers
  - C.  $7.7 \times 10^5$  kilometers
203. Bill's Car Rental uses the equation  $y = 35x$  to calculate the cost to rent a car for  $x$  days. The graph below shows the cost to rent a car from Katie's Car Rental.



Which statement is true?

- A. Bill's Car Rental charges \$5 more per day than Katie's Car Rental.
- B. Katie's Car Rental charges \$5 more per day than Bill's Car Rental.
- C. Bill's Car Rental charges \$15 more per day than Katie's Car Rental.

204. At Store *P*, the equation  $y = 3.29x$  represents the cost of  $x$  pounds of ground beef. The table below represents the cost of ground beef at Store *Q*.

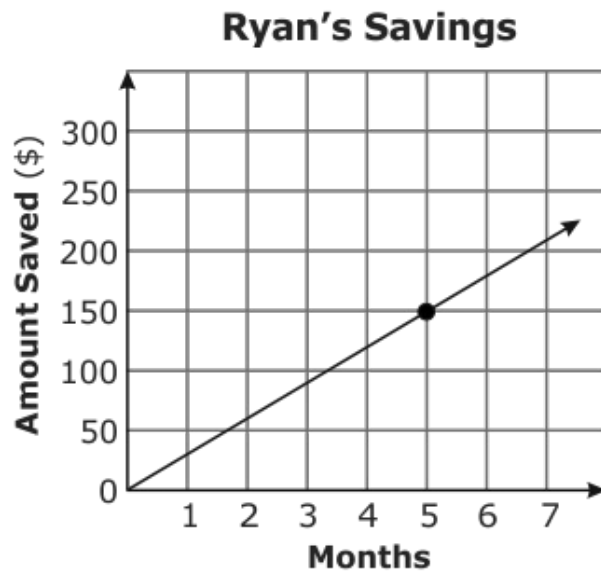
Pounds of Ground Beef	Cost (\$)
2	5.98
3	8.97
5	14.95

What is the difference in the cost of 1 pound of ground beef at the two stores?

- A. \$2.69
- B. \$0.33
- C. \$0.30



205. Emma uses the equation  $y = 25x$  to calculate the amount of money she has saved after  $x$  months. The graph below shows the amount of money Ryan has saved each month.



After 12 weeks, who has saved the most money and how much more?

- A. Emma has saved \$60 more than Ryan.
- B. Ryan has saved \$60 more than Emma.
- C. Emma and Ryan have saved the same amount.

206. The equation  $d = 40t$  represents a train's average speed, where  $d$  is distance and  $t$  is time. The table below shows the distance a car has traveled after  $x$  hours.

Hours Traveled	Distance (miles)
2	110
4	220
6	330

After 3 hours, which statement is true?

- A. The car has traveled 70 miles farther than the train.
- B. The train has traveled 45 miles farther than the car.
- C. The car has traveled 45 miles farther than the train.

207. Samantha uses the equation  $y = 12x$  to calculate the amount she charges to babysit for  $x$  hours. The table below shows the amount Bailey charges to babysit for different numbers of hours.

Hours Babysitting	Amount Charged
2	\$20
4	\$40
6	\$60

Which statement is true?

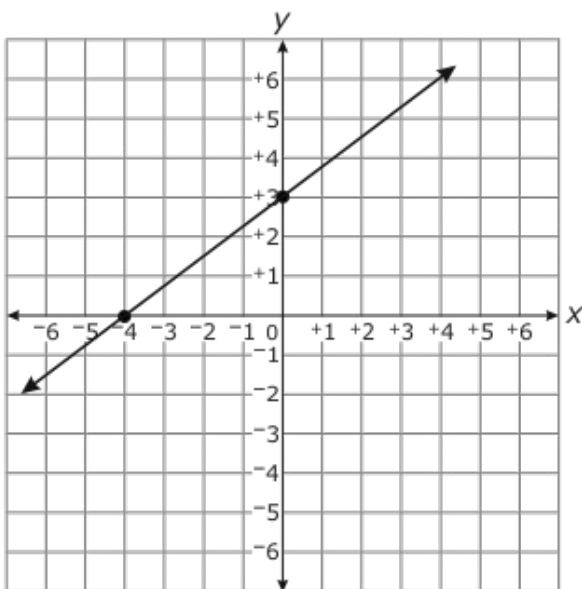
- A. Samantha charges \$2 more per hour than Bailey.
- B. Bailey charges \$2 more per hour than Samantha.
- C. Bailey charges \$8 more per hour than Samantha.

208. Which expression is equivalent to  $(4 \times 10^5)(3.2 \times 10^7)$ ?

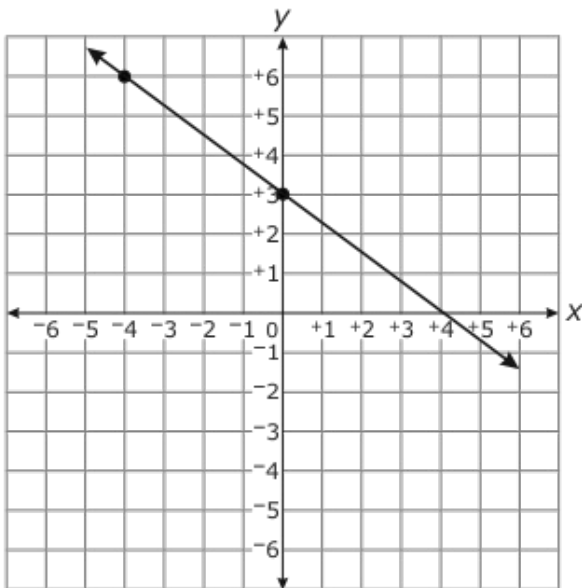
- A.  $1.28 \times 10^{12}$
- B.  $1.28 \times 10^{13}$
- C.  $1.28 \times 10^{35}$

209. Which shows the graph of the equation  $y = \frac{3}{4}x + 3$ ?

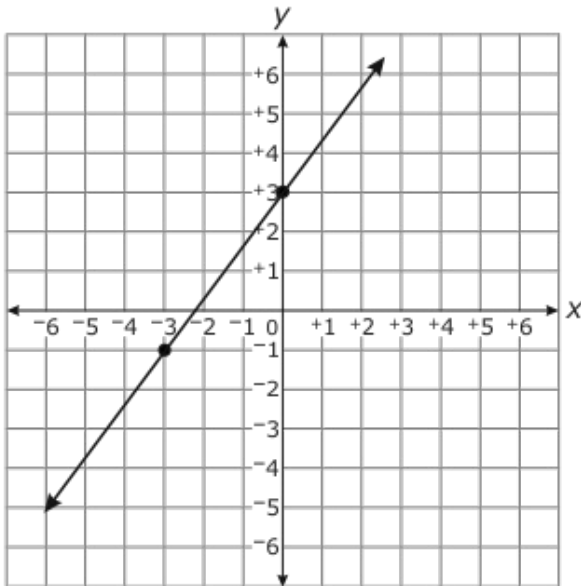
A.



B.

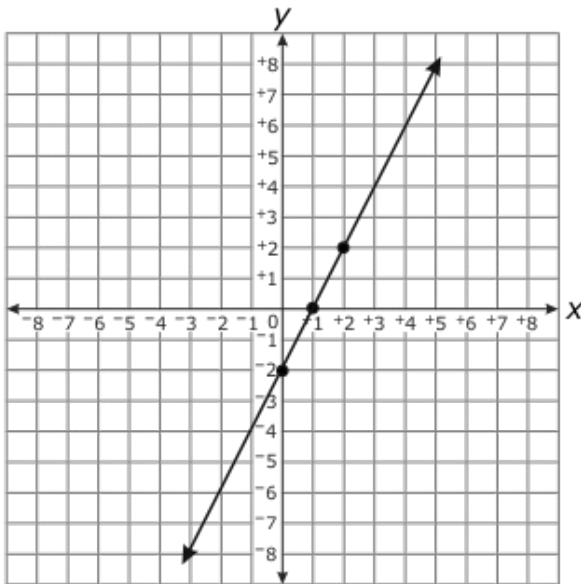


C.

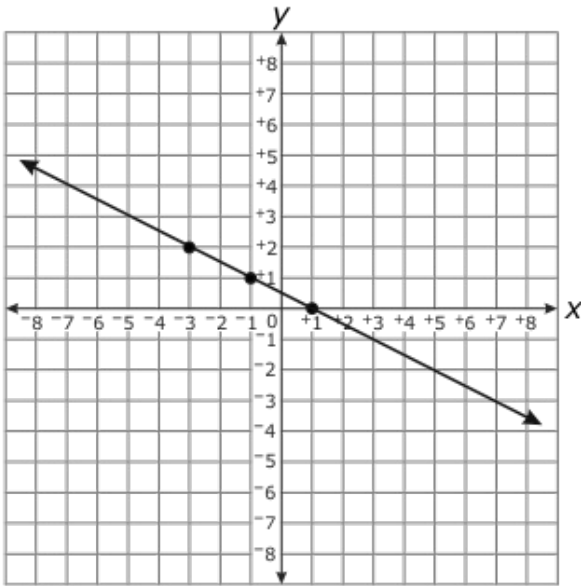


210. Which shows the graph of the equation  $y = -\frac{1}{2}x + 1$  ?

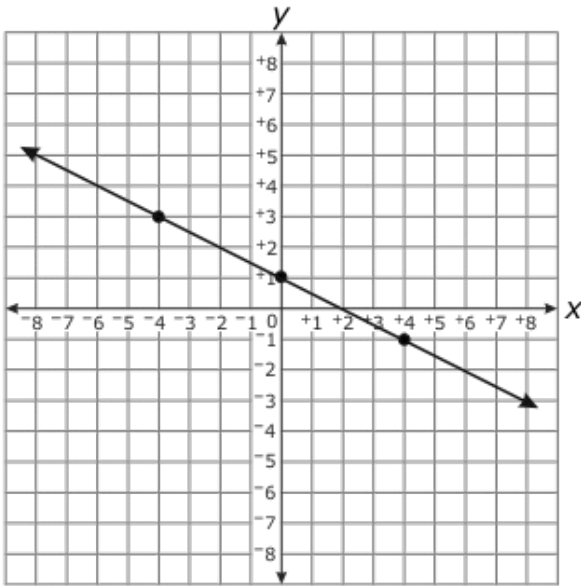
A.



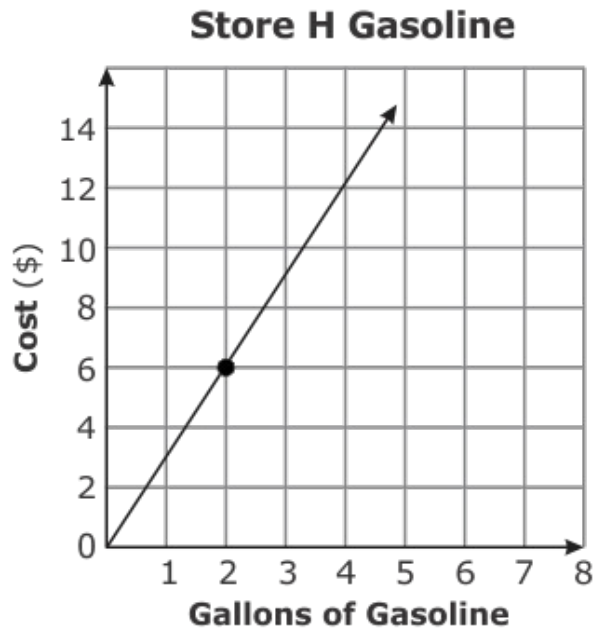
B.



C.



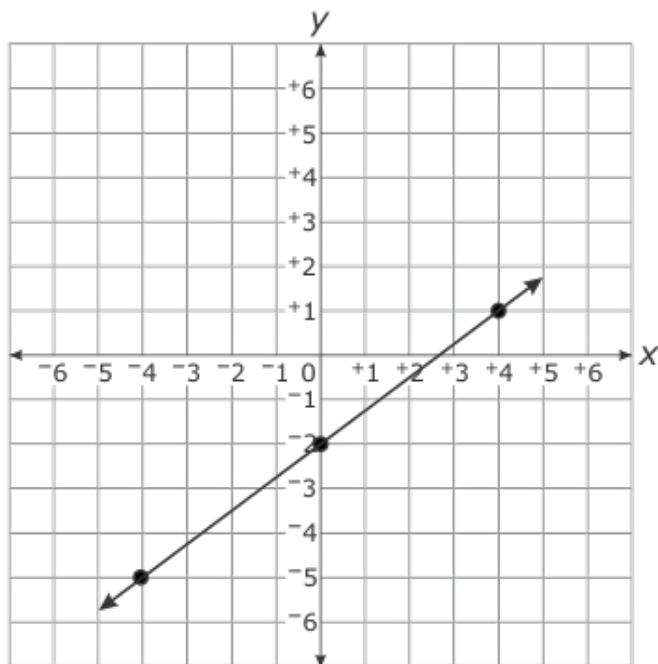
211. At Store G, the cost of a gallon of gas can be represented by the equation  $y = 3.25x$ , where  $y$  is the total cost and  $x$  is the number of gallons. The graph below shows the cost of gasoline at Store H.



How much more does a gallon of gasoline cost at Store G?

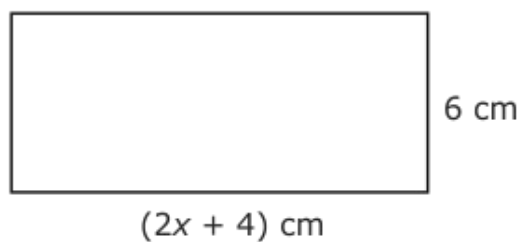
- A. \$0.25
- B. \$1.00
- C. \$1.25
212. The perimeter of a rectangle is 80 feet. The length of the rectangle is 10 feet greater than the width. What is the width of the rectangle?
- A. 10 feet
- B. 15 feet
- C. 25 feet
213. Mia is twice as old as Tom. When their ages are added together, they equal 45. How old is Tom?
- A. 15 years old
- B. 20 years old
- C. 25 years old

214. Which is an equation of the line graphed below?



- A.  $y = -\frac{3}{4}x - 2$
- B.  $y = \frac{3}{4}x - 2$
- C.  $y = \frac{4}{3}x - 2$

215. The area of the rectangle below is  $84 \text{ cm}^2$ .



What is the value of  $x$ ?

- A. 14
- B. 9
- C. 5

216. What is the value of  $x$  in the equation  $2x - 4 = 11x + 32$ ?

- A.  $-4$
- B.  $-3$
- C.  $4$

217. John's age is 4 times Matthew's age. The sum of their ages is 40 years. How old is John?

- A. 10 years old
- B. 30 years old
- C. 32 years old

218. What is the value of  $y$  in the equation below?

$$3(y + 3) = 3y + 9$$

- A. 2
- B. infinitely many solutions
- C. no solution

219. What is the value of  $g$  in the equation  $2(g - 3) = 24$ ?

- A. 12
- B. 14
- C. 15

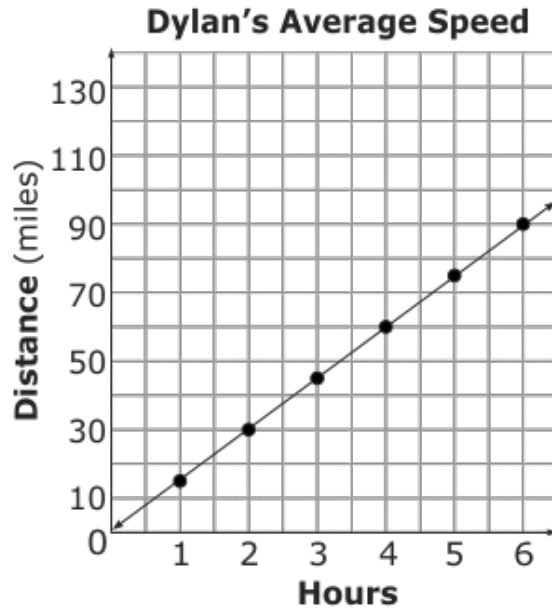
220. What is the value of  $x$  in the equation  $2x + 14 = 10 + x$ ?

- A.  $-4$
- B.  $4$
- C.  $8$



221. Hannah is paid by the hour. After working 6.5 hours, Hannah earned \$57.20. The amount of money,  $m$ , Micah earns in  $h$  hours is represented by the equation  $m = 9.25h$ . If Hannah and Micah both work 12 hours, which statement below is true?
- A. Micah will earn \$0.45 more than Hannah.
  - B. Hannah will earn \$0.45 more than Micah.
  - C. Micah will earn \$5.40 more than Hannah.
  - D. Hannah will earn \$5.40 more than Micah.
222. Grocery Mart sells 18 ounces of oatmeal for \$2.52 or 30 ounces of oatmeal for \$4.20. The cost of oatmeal at Mega Chain can be calculated using the equation  $y = 1.92x$ , where  $y$  is the total cost of  $x$  pounds of oatmeal. Which statement is true?
- A. One pound of oatmeal costs \$0.60 less at Grocery Mart.
  - B. One pound of oatmeal costs \$0.60 less at Mega Chain.
  - C. One pound of oatmeal costs \$0.32 less at Grocery Mart.
  - D. One pound of oatmeal costs \$0.32 less at Mega Chain.

223. Austin and Dylan rode their bicycles. Austin's average speed is represented by the equation  $d = 20t$ , where  $d$  is the total distance traveled in  $t$  hours. The graph below represents Dylan's average speed while riding his bicycle.



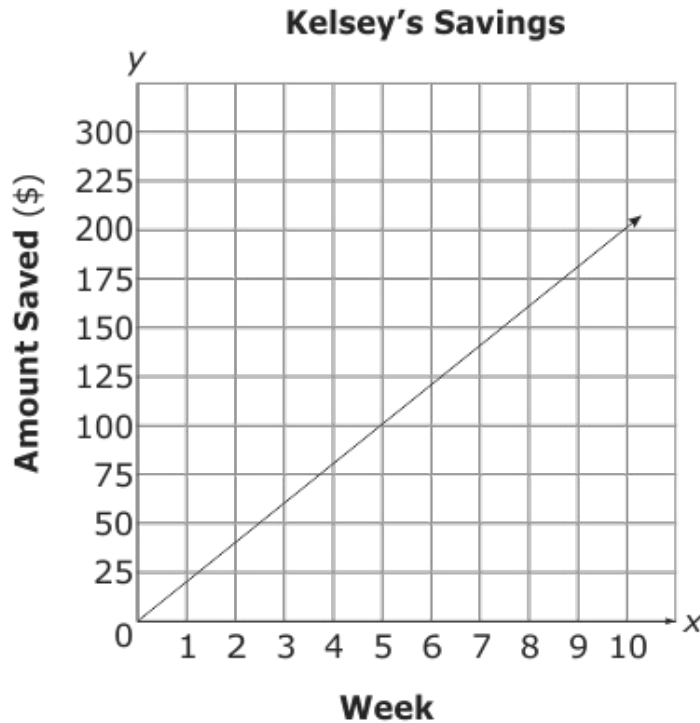
Who had the fastest average speed and by how much?

- A. Dylan by 5 mph
- B. Austin by 5 mph
- C. Dylan by 35 mph
- D. Austin by 35 mph

224. Jonathan and Kelsey are saving money for summer camp. Jonathan recorded his savings in the table below.

Week	Amount Saved
2	\$64
3	\$96
7	\$224

Kelsey's savings are shown in the graph below.



After 10 weeks, who has saved the most money and how much more?

- A. Jonathan has saved \$120 more than Kelsey.
- B. Kelsey has saved \$120 more than Jonathan.
- C. Jonathan has saved \$80 more than Kelsey.
- D. Kelsey has saved \$80 more than Jonathan.

225. Cramer’s Cab Company uses the equation  $y = \$3.80x$  to calculate the cost of a cab ride, where  $y$  is the amount charged for each mile,  $x$ , traveled. The table below displays the amount charged by Will’s Cab Company for a cab ride.

**Will’s Cab Rates**

<b>Miles Traveled (<math>x</math>)</b>	<b>Total Cost (<math>y</math>)</b>
3	\$8.70
6	\$17.40
8	\$23.20
12	\$34.80

Jason needs to travel 16 miles. Which statement is true?

- A. Cramer’s Cab Company will charge \$46.80.
  - B. Will’s Cab Company will charge \$60.80.
  - C. Cramer’s Cab Company will charge \$14.40 less than Will’s Cab Company.
  - D. Will’s Cab Company will charge \$14.40 less than Cramer’s Cab Company.
226. The equation  $y = 12x$ , represents the average number of calories burned,  $y$ , for each minute of running,  $x$ . The table below shows the average number of calories burned when walking for different amounts of time.

<b>Number of Minutes Walked</b>	2	5	6	8
<b>Total Calories</b>	17	42.5	51	68

Michelle went running for 30 minutes. Laura went walking for 30 minutes. Which statement is true?

- A. Michelle burned 105 more calories than Laura.
- B. Laura burned 105 more calories than Michelle.
- C. Michelle burned 150 more calories than Laura.
- D. Laura burned 150 more calories than Michelle.

227. Abigail and Tony raised money for a walk-a-thon at school. The equation  $y = 4x$  gives the amount of money,  $y$ , Abigail earned for walking  $x$  miles. The amount Tony earned is recorded in the table below.

<b>Miles</b>	2	6	8
<b>Amount Earned (\$)</b>	5	15	20

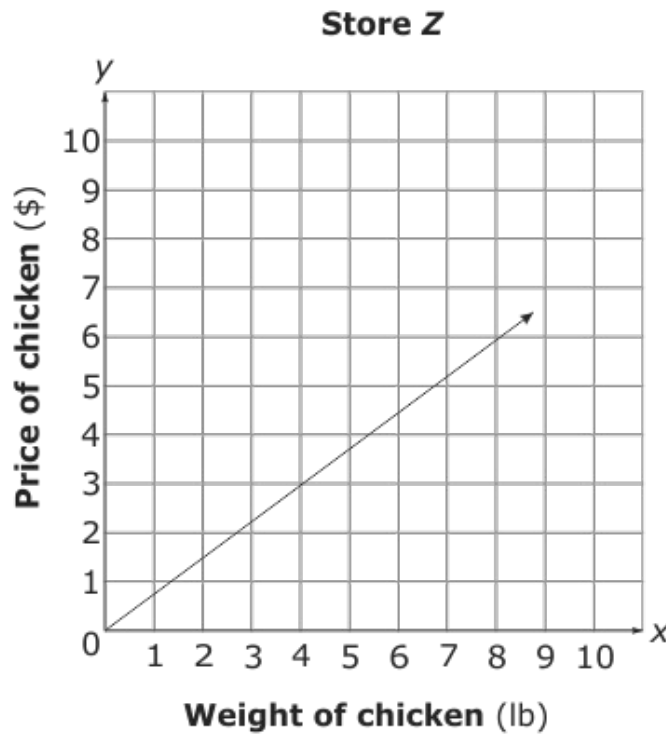
If Abigail and Tony both walked 7 miles, who earned the most money and by how much?

- A. Abigail earned \$1.50 more than Tony.
- B. Tony earned \$1.50 more than Abigail.
- C. Abigail earned \$10.50 more than Tony.
- D. Tony earned \$10.50 more than Abigail.

228. The table below shows the prices Store *W* charges for chickens based on their weights.

<b>Weight of Chicken (lb)</b>	<b>Cost of Chicken (\$)</b>
3.2	2.85
4.5	4.01
5.1	4.54

The graph below shows the prices Store *Z* charges for chickens based on their weights.



Based on this information, which statement is true about the price of chickens?

- A. Store *W* is \$0.09 less per pound than Store *Z*.
- B. Store *W* is \$0.09 more per pound than Store *Z*.
- C. Store *W* is \$0.14 less per pound than Store *Z*.
- D. Store *W* is \$0.14 more per pound than Store *Z*.

229. Melissa and Kayla both earned money babysitting last summer. The equation  $y = 17x$  represents the amount of money Melissa earned after  $x$  weeks. The table below represents the total amount of money Kayla earned in different numbers of weeks.

<b>Number of Weeks</b>	<b>Money Earned</b>
2	\$28
5	\$70
7	\$98

If both girls babysat for 9 weeks, who earned the most money and by how much?

- A. Melissa, by \$3
  - B. Kayla, by \$3
  - C. Melissa, by \$27
  - D. Kayla, by \$27
230. The volume of the Great Pyramid is about  $11,000 \text{ m}^3$ . How is this volume written in scientific notation?
- A.  $1.1 \times 10^3 \text{ m}^3$
  - B.  $1.1 \times 10^4 \text{ m}^3$
  - C.  $1.1 \times 10^5 \text{ m}^3$
231. Which is equivalent to 0.005?
- A.  $5 \times 10^{-3}$
  - B.  $5 \times 10^{-2}$
  - C.  $5 \times 10^2$
232. Mars is about 228,000,000 km away from the sun. How is this distance written in scientific notation?
- A.  $2.28 \times 10^9 \text{ km}$
  - B.  $2.28 \times 10^8 \text{ km}$
  - C.  $2.28 \times 10^6 \text{ km}$

233. What is 905,000 written in scientific notation?
- A  $9.05 \times 10^3$
  - B  $9.05 \times 10^4$
  - C  $9.05 \times 10^5$
234. The distance from Earth to the Sun is about  $1.5 \times 10^8$ . The distance from Pluto to the Sun is about  $6.0 \times 10^9$ . **About** how many times farther away from the Sun is Pluto than Earth?
- A 4 times farther
  - B 10 times farther
  - C 40 times farther
  - D 100 times farther
235. The diameter of an atom is approximately  $5 \times 10^{-8}$  cm. The diameter of the nucleus of an atom is approximately  $1 \times 10^{-12}$  cm. **About** how many times smaller is the diameter of the nucleus of the atom than the diameter of the entire atom?
- A 5
  - B 50
  - C 5,000
  - D 50,000
236. The population of city X is about  $1.7 \times 10^6$ . The population of city Y is about  $1.06 \times 10^5$ . **Approximately** how many times larger is city X than city Y?
- A 1.6
  - B 16
  - C 160
  - D 1,600



237. Which expression is equivalent to  $(4 \times 10^5)(0.0002)$ ?
- A  $2 \times 10^{-4}$
  - B  $2 \times 10^{-3}$
  - C  $4 \times 10^7$
  - D  $8 \times 10^1$
238. The distance from Earth to the Sun is approximately  $1.5 \times 10^8$  km. The distance from Earth to Jupiter is approximately  $6.3 \times 10^8$  km. **About** how many times farther is Jupiter from the Earth than the Sun is from the Earth?
- A 420
  - B 42
  - C 4.2
  - D 0.42
239. The Empire State Building in New York City is 381 meters tall. Dylan bought a replica that was  $7.62 \times 10^{-2}$  meters tall. **About** how many times smaller is the replica than the actual building?
- A 50
  - B 500
  - C 1,000
  - D 5,000
240. The size of the smallest known bacteria is  $2 \times 10^{-7}$  m. The size of the largest known bacteria is  $7.5 \times 10^{-4}$  m. **About** how many times smaller are the smallest bacteria than the largest bacteria?
- A 285
  - B 375
  - C 2,850
  - D 3,750

241. Which is equivalent to  $(2.5 \times 10^6)(130,000)$ ?

- A  $3.25 \times 10^{11}$
- B  $3.25 \times 10^{10}$
- C  $3.25 \times 10^9$
- D  $3.25 \times 10^8$

242. Which expression is equivalent to  $(5.75 \times 10^{12})(3 \times 10^{-18})$ ?

- A  $1.725 \times 10^{-6}$
- B  $1.725 \times 10^{-5}$
- C  $1.725 \times 10^6$
- D  $1.725 \times 10^5$

243. Which value is equivalent to  $(5 \times 10^7)(0.003)$ ?

- A  $1.5 \times 10^2$
- B  $1.5 \times 10^3$
- C  $1.5 \times 10^4$
- D  $1.5 \times 10^5$

244. What is the value of the expression  $\frac{4.2 \times 10^{-3}}{2.1 \times 10^2}$  ?

A.

$$2 \times 10^{-1}$$

B.

$$2 \times 10^{-2}$$

C.

$$2 \times 10^{-5}$$

D.

$$2 \times 10^{-6}$$

245. Which is equivalent to  $(6 \times 10^9) \div (8 \times 10^{-3})$ ?

A.  $4.8 \times 10^7$

B.  $4.8 \times 10^{13}$

C.  $7.5 \times 10^6$

D.  $7.5 \times 10^{11}$

246. Which value is equivalent to  $(6.4 \times 10^8)(0.0003)$ ?

A.  $1.92 \times 10^4$

B.  $1.92 \times 10^5$

C.  $6.4003 \times 10^8$

D.  $6.4003 \times 10^{24}$

247. What is the value of the expression  $(9.6 \times 10^7) \div (3.2 \times 10^{-4})$ ?

A.  $3 \times 10^{11}$

B.  $3 \times 10^3$

C.  $3 \times 10^{-11}$

D.  $3 \times 10^{-3}$

248. What is the value of the expression  $\frac{0.0025}{2.5 \times 10^3}$ ?

A.

$1 \times 10^{-3}$

B.

$1 \times 10^{-6}$

C.

$2.5 \times 10^{-3}$

D.

$2.5 \times 10^{-6}$

249. Which is equivalent to the expression  $\frac{2^3 \times 2^2}{2^4}$ ?

A. 1

B. 2

C. 3

D. 4

250. What is the value of  $\sqrt{6\frac{1}{4}}$  ?

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

B.  $3\frac{1}{8}$

C.  $12\frac{1}{2}$

D.  $18\frac{3}{4}$