Summer Review Algebra 1 Honors

____ 1. Troy wants to plant some spices in a cube-shaped planter box. If one edge of the box measures 5 inches, how much soil will be needed to fill the planter?

a. $42\ \text{in.}^3$ b. $150\ \text{in.}^3$ c. $125\ \text{in.}^3$ d. $25\ \text{in.}^3$

Simplify:

____ 2. $2 + 2(3 + 4)^2$

a. 198 c. 25
b. 196 d. 100

____ 3. Simplify $12 \times 8 + 20 - 8 \div 2.$

a. 98 c. 102
b. 112 d. 54

____ 4. Simplify $\left(5^3 \times 6^2 - 5^3 \times 3^2\right) \div (3+2)^3.$

a. 171 c. 135
b. 279 d. 27

____ 5. Simplify $\left(5 \cdot 4^2 - 5 \cdot 3^2\right) \div (3 + 2).$

a. 71 c. 35
b. 7 d. 99

____ 6. You swam for 50 minutes and burned 250 calories. How many calories did you burn per minute?

a. 5 calories per minute c. 300 calories per minute
b. 300.053 calories per minute d. 6 calories per minute

____ 7. It is known that a cyclist can travel 41.4 miles in 3 hours. At that rate, how far can the same cyclist travel in 7 hours?

a. 95.2 miles c. 97.8 miles
b. 96.6 miles d. 97.4 miles

____ 8. Which number is the solution of $66 = 71 - x$?

a. 4 c. 5
b. 7 d. 6

____ 9. The cost of renting a canoe is $8.75, plus $0.25 per hour for the time that the canoe is out. Which equation could be used to find *C*, the cost in dollars for using the canoe for *H* hours?

a. $C = 8.75 + 0.25H$ c. $C + 0.25H = 8.75$
b. $C = 8.75 \times 0.25H$ d. $C = (8.75 + 0.25)H$

____ 10. A jumbo jet carries 380 passengers, 42 in first class, and the remainder in coach. If the average first class ticket is $930 and the average coach ticket is $512, how much will the airline gross if the plane is full?

a. $212,116 c. $335,844
b. $215,496 d. $273,980

____ 11. The total height of a building and the flagpole on the roof is 154 feet. The building is 6 times as tall as the flagpole. How tall is the flagpole?

a. 176 feet c. 110 feet
b. 22 feet d. 132 feet

____ 12. Bartholomew's pet snake was 1.3 meters long one week ago. In 7 days it grew 22 centimeters. How long is the snake?

a. 1.43 m c. 23.3 cm
b. 1.52 m d. 23.39 cm

____ 13. At 71 km/h, how far can you travel in 4.5 h?

a. 461.5 km
c. 319.5 km
b. 297 km
d. 177.5 km

____ 14. Make an input-output table for the function $y = 2x + 6$. Use x-values of 1, 2, 3, 4, and 5.

a.

Input, x	1	2	3	4	5
Output, y	6	7	8	9	10

c.

Input, x	1	2	3	4	5
Output, y	8	22	50	106	218

b.

Input, x	1	2	3	4	5
Output, y	8	10	12	14	16

d.

Input, x	1	2	3	4	5
Output, y	7	9	11	13	15

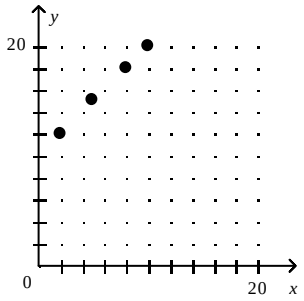
____ 15. Which function rule matches the input-output table?

Input, x	1	2	3	4	5
Output, y	14	19	24	29	34

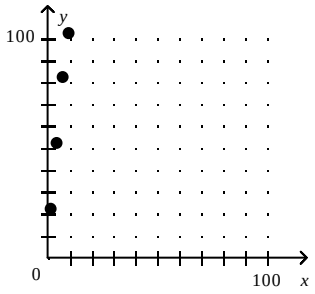
a. $y = 9 + 6x$ b. $y = 10 + 4x$ c. $y = 9 + 5x$ d. $y = 8 + 5x$

____ 16. Employees earn \$10 per hour plus \$1.00 for every unit they produce per hour. Which of the following shows both an equation in which y represents the employee's wages for producing x units per hour, and the graph of the wages earned for producing 2, 5, 8, and 10 units per hour?

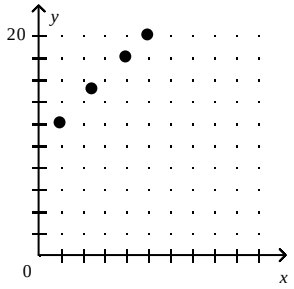
a. $y = 10x + 1$



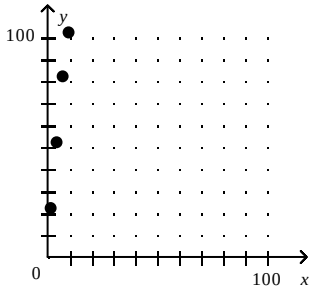
c. $y = 10 + x$



b. $y = 10 + x$



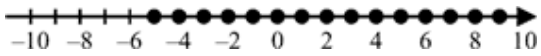
d. $y = 10x + 1$



____ 17. Evaluate the expression $-|-12|$.

a. 12 b. -11 c. 11 d. -12

____ 18. Select the description that matches the graph.



a. integers less than or equal to –7
b. integers less than or equal to –6
c. integers greater than or equal to –6
d. integers greater than or equal to –5

____ 19. Use the concept of opposites to simplify —[–(+6)].
a. $-\frac{1}{6}$
b. 6
c. $\frac{1}{6}$
d. –6

____ 20. Which of the following illustrates the associative property of addition?
a. 6 + 5 = 11 + 0
b. (11 + 8) + 5 = 11 + (8 + 5)
c. 3 + 1 = 1 + 3
d. 3 + (3 + 1) = 3 + (3 + 1)

Evaluate.

____ 21. –(–3) – (–4) + 5
a. 2
b. 12
c. 4
d. –2

Find the change in temperature.

____ 22. From –13°C to 15°C
a. –2°C
b. 28°C
c. 2°C
d. –28°C

Find the product.

____ 23. (–7)(5)(6)
a. –210
b. 4
c. 210
d. –4

____ 24. Identify the product that will be negative.
a. $(-2)(-3)(-4)(-5)$
b. $(2)(-3)(-4)(5)$
c. $(2)(3)(4)(5)$
d. $(-2)(-3)(-4)(5)$

____ 25. Which multiplication property is illustrated by the product $(7 \cdot 5) \cdot 4 = 7 \cdot (5 \cdot 4)$?
a. commutative
b. property of opposite
c. associative
d. identity

Identify the property illustrated in the statement.

____ 26. $-2(7x) = (-2 \cdot 7)x$
a. Commutative property of multiplication
b. Associative property of multiplication
c. Commutative property of addition
d. Associative property of addition

Use the distributive property to write an equivalent expression.

____ 27. $-4(x - 4)$
a. $-4x + 16$
b. $-4x - 16$
c. $-4x + 4$
d. $-4x - 4$

Identify the terms, like terms, coefficients, and constant terms. Then simplify the expression.

____ 28. $4b + 7 - 5b - 19$

a. terms: $4b,\ 7,\ -5b,\ 19$
like terms: $4b$ and $-5b$, 7 and 19
coefficients: $4,\ -5$
constant terms: $7,\ 19$
simplified expression: $-b + 26$

b. terms: $4b,\ -7,\ 5b,\ 19$
like terms: $4b$ and $5b$, -7 and 19
coefficients: $4,\ 5$
constant terms: $-7,\ 19$
simplified expression: $9b + 12$

c. terms: $4b,\ 7,\ -5b,\ -19$
like terms: $4b$ and $-5b$, 7 and -19
coefficients: $4,\ -5$
constant terms: $7,\ -19$
simplified expression: $-b - 12$

d. terms: $4b,\ -7,\ 5b,\ -19$
like terms: $4b$ and $5b$, -7 and -19
coefficients: $4,\ 5$
constant terms: $-7,\ -19$
simplified expression: $9b - 26$

____ 29. Simplify the expression $7x + 4 + 3x + 3$.

a. $10x + 1$
b. $4x + 7$
c. $10x + 7$
d. $4x + 1$

____ 30. Maria wrote this mathematical sentence: $5x^8 + 7x^8 = 12x^{16}$. Explain her mistake and how to correct it.

a. When Maria combined the like terms, she should have multiplied the exponents; the correct answer is $12x^{64}$.
b. When Maria combined the like terms, she should have multiplied the coefficients and the exponents; the correct answer is $35x^{64}$.
c. When Maria combined the like terms, she should not have added the exponents. When adding like terms, only the coefficients should be added; the correct answer is $12x^8$.
d. When Maria combined the like terms, she should have multiplied the coefficients; the correct answer is $35x^8$.

____ 31. Bill wants to simplify the following expression.

$5(3x - 2y) + 2(x + 2y) - 3(3x - 2y)$

Which of the following expressions is equivalent to the expression above?

a. $8x - 8y$
b. $8xy$
c. $8x$
d. $8x - 12y$

____ 32. Find the quotient. $12 \div \left(-\frac{4}{9}\right)$

a. $\frac{9}{4}$
b. $\frac{3}{9}$
c. $\frac{1}{27}$
d. -27

A student measured the temperature in degrees Celsius for several winter days and recorded the data in a list. Find the mean of the temperatures listed.

____ 33. –7°, –8°, –9°, 7°, –8°, –5°

a. –9°C b. –5°C c. –7.5°C d. –8°C

____ 34. What is the multiplicative inverse of $1\frac{1}{7}$?

a. $\frac{6}{7}$ b. 87 c. $\frac{7}{8}$ d. 78

Find the quotient.

____ 35. $6 \div \frac{2}{3}$

a. 9 b. $\frac{1}{3}$ c. $\frac{1}{9}$ d. 3

Simplify:

____ 36. $\sqrt{36}$

a. 36 b. 6 c. 0.6 d. $\sqrt{5}$

____ 37. Which of the following is an irrational number?

a. 0.0626262... c. $\sqrt{2}$

b. $\sqrt{49}$ d. $\frac{3}{5}$

Order the numbers from least to greatest.

____ 38. $3.\bar{6}, \frac{9}{2}, \sqrt{13}, 3\frac{1}{2}, \sqrt{\frac{9}{4}}$

a. $\sqrt{\frac{9}{4}}, 3\frac{1}{2}, 3.\bar{6}, \sqrt{13}, \frac{9}{2}$ c. $\sqrt{\frac{9}{4}}, \sqrt{13}, 3\frac{1}{2}, 3.\bar{6}, \frac{9}{2}$

b. $3.\bar{6}, \sqrt{\frac{9}{4}}, \sqrt{13}, 3\frac{1}{2}, \frac{9}{2}$ d. $\sqrt{\frac{9}{4}}, 3\frac{1}{2}, \sqrt{13}, 3.\bar{6}, \frac{9}{2}$

Solve the equation.

____ 39. $x + 12 = 26$

a. 37 b. 14 c. 15 d. 38

____ 40. $-\frac{x}{7} = 28$

a. –196 b. 196 c. –4 d. 4

____ 41. A college student has set aside $240 for the rest of the school year to use the coin-operated laundry facility in his dormitory. Each time he uses the machines, it costs $7.50. Choose the equation that represents the amount remaining in his fund, *f*, after he has done laundry *x* times. Find the amount remaining in the fund after 12 trips to the laundry facility.

a. $f = 240 - 7.50x$; \$150 c. $f = 7.50 - 240x$; \$150

b. $f = 240 - 7.50x$; \$90.00 d. $f = 7.50 - 240x$; \$90.00

Solve the equation.

____ 42. $\frac{3}{16}y - 51 = 0$

a. –2448
b. 272
c. –272
d. 2448

____ 43. $-0.9x + 2.8 = 4.1$

a. –7.67
b. –1.44
c. –2.56
d. 2.20

____ 44. Gary's cellular phone bill averages $56.35 per month, based on a fixed fee of $29.95 and $0.22 per minute of usage. The phone company has decided to reduce the per-minute charge to $0.18. How much does this change save Gary in an average month?

a. $10.24
b. $1.04
c. $4.80
d. $5.88

Solve the equation.

____ 45. $5x - 24 - 6x + 16 = 2$

a. 38
b. –38
c. –10
d. 10

____ 46. $9x - 5 = x + 1$

a. $\frac{3}{4}$
b. $\frac{4}{3}$
c. $-\frac{8}{9}$
d. $-\frac{3}{4}$

____ 47. $\frac{3}{n} = \frac{36}{4}$

a. 3
b. $\frac{1}{9}$
c. 12
d. $\frac{1}{3}$

____ 48. Will and Jim shared the driving on a trip to a business convention. Will's average driving speed was 52 miles per hour. Jim averaged 44 miles per hour and drove 2 hours longer than Will. If x is the time Will drove, the situation can be modeled by the equation $44(x + 2) = d - 52x$, where d is the length of the trip in miles. If the trip was 352 miles long, how far did Jim drive?

a. 238 miles
b. 209 miles
c. 143 miles
d. 191 miles

____ 49. The perimeter of a rectangular garden is 710 ft. The two long sides of the garden are each 310 ft long. You are asked to find the length of the other sides. Which equation models this situation?

a. $310(x - 2) = 710$
b. $310 + x = 710$
c. $2(310) + 2x = 710$
d. $310 + 2x = 710$

____ 50. Nicole sold 15 tickets to the school play and Andrew sold 24 tickets. What is the ratio of the number of tickets Nicole sold to the number of tickets Andrew sold?

a. 24 to 15
b. 5 to 8
c. 3 to 5
d. 3 to 8

____ 51. A car travels 200 miles on 10 gallons of gas. At this rate, how many gallons will it need to travel 280 miles?

a. 12 gallons
b. 14 gallons
c. 7.1 gallons
d. 13 gallons

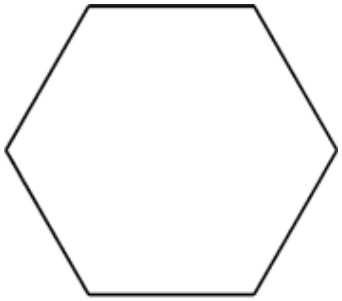
____ 52. A cyclist can travel 29.6 miles in 2 hours. At this rate, how far can the same cyclist travel in 45 minutes?

a. 16.2 miles
b. 14.8 miles
c. 11.1 miles
d. 22.2 miles

____ 53. In 2 hours a candymaker can produce 80 boxes that each contain 10 pieces of candy. How many pieces of candy does the candymaker produce in 6 hours?

a. 2400 pieces
b. 600 pieces
c. 4800 pieces
d. 480 pieces

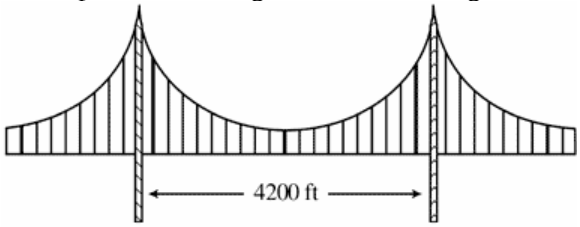
____ 54. The figure below represents a building in the shape of a hexagon. Using the scale 1 inch = 59 feet, what is the perimeter of the building?



4 inches

a. 354 feet
b. 236 feet
c. 1416 feet
d. 1652 feet

____ 55. A scale model of the Golden Gate Bridge in San Francisco Bay has a main span that is 20 inches long. If the main span of the bridge is 4200 feet long, what is the scale of the model?

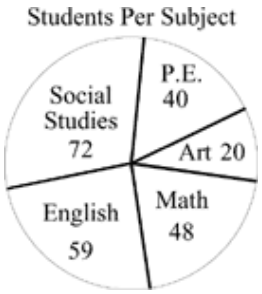


a. 1 ft : 210 ft
b. 1 ft : 3500 ft
c. 1 ft : 2520 ft
d. 1 ft : 350 ft

____ 56. What percent of 32 is 8?

a. $\frac{1}{4}\%$
b. 4%
c. 0.25%
d. 25%

____ 57. A survey was taken to determine the favorite subjects of 8th graders. The results are shown in the graph. About what percent of students chose Social Studies as their favorite subject?



a. 30% b. 48% c. 72% d. 43%

____ 58. Rose answered 41 of 48 questions on a test. Of those she answered, Rose answered 7 incorrectly. Approximately what percent of all the questions on the test did she answer incorrectly or not answer?

a. 85%
b. 30%
c. 29%
d. 71%

____ 59. What number is 90% of 60?

a. 54
b. 15
c. $\frac{3}{2}$
d. 54%

____ 60. Solve $z = \frac{2}{11}c$ for c.

a. $c = \frac{11}{2}z$
b. $c = -\frac{11}{2}z$
c. $c = -\frac{2}{11}z$
d. $c = \frac{2}{11}z$

____ 61. Solve $y = \frac{5}{8}b + 10$ for b.

a. $b = \frac{5}{8}y - 10$
b. $b = -\frac{5}{8}y + 10$
c. $b = \frac{8}{5}y - 16$
d. $b = -\frac{8}{5}y + 16$

Complete the statement with <, >, or =.

____ 62. $\frac{140}{32} \_\_?\_\_ 4\frac{3}{8}$

a. <
b. =
c. >

____ 63. $5\frac{4}{7} \_\_?\_\_ \frac{120}{21}$

a. >
b. <
c. =

Write the numbers in order from least to greatest.

____ 64. $-\frac{25}{4}, -6\frac{7}{12}, -\frac{31}{5}, -6\frac{5}{24}, -\frac{19}{3}$

a. $-\frac{19}{3}, -\frac{25}{4}, -\frac{31}{5}, -6\frac{7}{12}, -6\frac{5}{24}$
c. $-6\frac{7}{12}, -\frac{19}{3}, -\frac{25}{4}, -6\frac{5}{24}, -\frac{31}{5}$

b. $-\frac{31}{5}, -6\frac{5}{24}, -\frac{25}{4}, -\frac{19}{3}, -6\frac{7}{12}$

d. $-6\frac{5}{24}, -6\frac{7}{12}, -\frac{31}{5}, -\frac{25}{4}, -\frac{19}{3}$

Find the sum or difference. For #65-67 do not use a calculator. Show on your work here.

____ 65. $86.754 + 9.69$
a. 877.23
b. 87.723
c. 94.554
d. 96.444

Find the product or quotient.

____ 66. $7.02 \div 0.009$
a. 780
b. 7.8
c. 78
d. 0.7

____ 67. $0.04 \cdot 8.1$
a. 0.324
b. 0.0324
c. 0.00324
d. 3.24

Find the greatest common factor of the numbers.

____ 68. 44, 40, 28
a. 4
b. 40
c. 20
d. 12

Decide whether the numbers are relatively prime. If not, find the greatest common factor.

____ 69. 30, 12
a. No; 30
b. No; 6
c. Yes
d. No; 3

Write the prime factorization of the numbers. Then find their LCM.

____ 70. 24, 63
a. $24 = 2 \cdot 3, 63 = 3 \cdot 7; 126$
b. $24 = 2^3 \cdot 3, 63 = 3^2 \cdot 7; 504$
c. $24 = 2^3 \cdot 3, 63 = 3^2 \cdot 7; 126$
d. $24 = 2^3 \cdot 3, 63 = 3^2 \cdot 7; 1512$

Find the sum or difference.

____ 71. $7\frac{3}{7} - 5\frac{5}{7}$

a. $2\frac{5}{7}$
c. $1\frac{4}{7}$
b. $2\frac{4}{7}$
d. $1\frac{5}{7}$

____ 72. $\frac{4}{9} - \frac{1}{15}$

a. $\frac{5}{24}$
c. $\frac{4}{135}$
b. $\frac{17}{45}$
d. $\frac{52}{135}$

Find the product.

____ 73. $\frac{2}{5} \cdot \frac{1}{8}$

a. $3\frac{1}{5}$
c. 20
b. $\frac{1}{20}$
d. $\frac{5}{16}$

____ 74. $\frac{1}{3} \cdot 3\frac{3}{4}$

a. $1\frac{5}{24}$
c. $1\frac{1}{4}$
b. $1\frac{7}{24}$
d. $\frac{4}{5}$

Find the quotient.

____ 75. $\frac{6}{5} \div \frac{3}{5}$

a. $\frac{7}{15}$
c. $2\frac{1}{15}$
b. $\frac{1}{2}$
d. 2

Write the decimal as a fraction or mixed number.

____ 76. 0.145

a. $\frac{29}{100}$
c. $1\frac{9}{20}$
b. $\frac{29}{2000}$
d. $\frac{29}{200}$

Write the fraction or mixed number as a decimal.

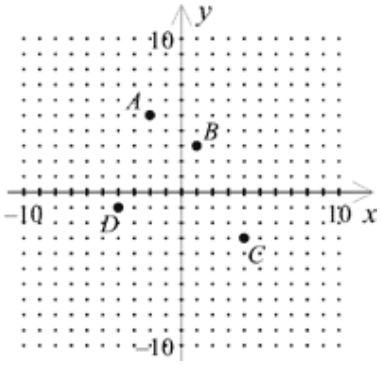
____ 77. $\frac{11}{20}$

a. 11.00
b. 0.55
c. 0.21
d. 1.81818

____ 78. $7\frac{4}{7}$

a. $7.\overline{571428}$
b. $7.\overline{5714285714}$
c. $7.571\overline{4285714}$
d. $7.5\overline{71428}$

____ 79. Name the coordinates of the points *A*, *B*, *C*, and *D*.

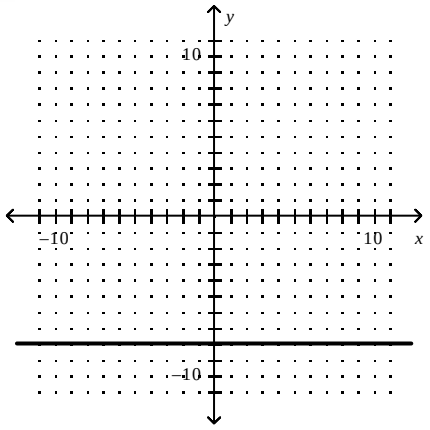


a. *A* (–2, 5), *B* (1, 3), *C* (4, –3), *D* (–4, –1)
b. *A* (5, –2), *B* (1, 3), *C* (–3, 4), *D* (–4, –1)
c. *A* (–2, 5), *B* (3, 1), *C* (4, –3), *D* (–1, –4)
d. *A* (5, –2), *B* (3, 1), *C* (–3, 4), *D* (–1, –4)

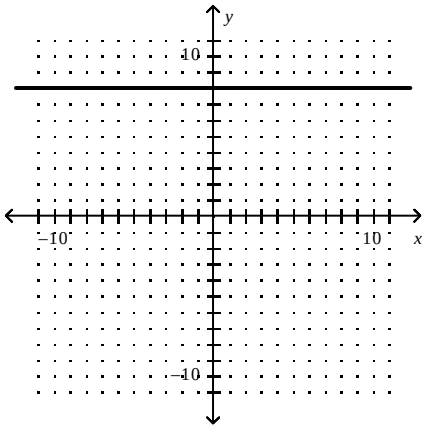
Graph the equation.

____ 80. $x = 8$

a.



c.



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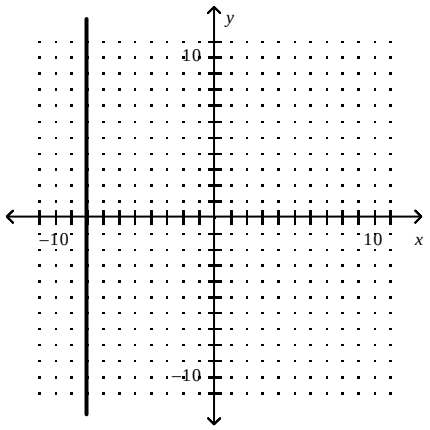

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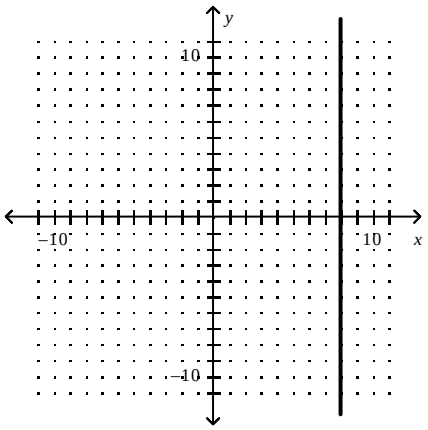
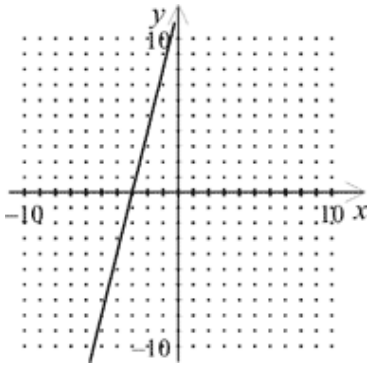


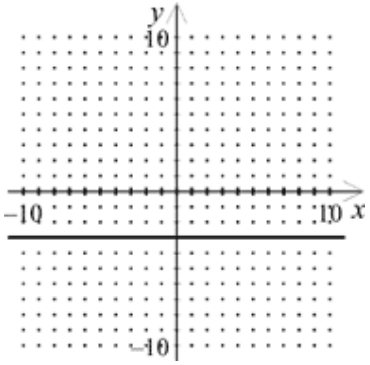
Graph the equation.

____ 81. $4y + 12 = 0$

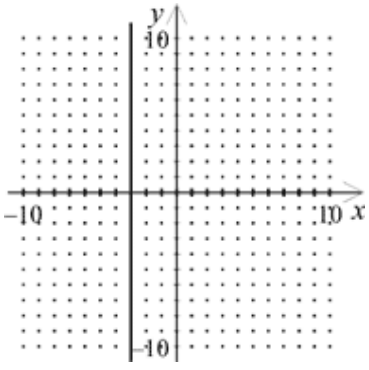
a.



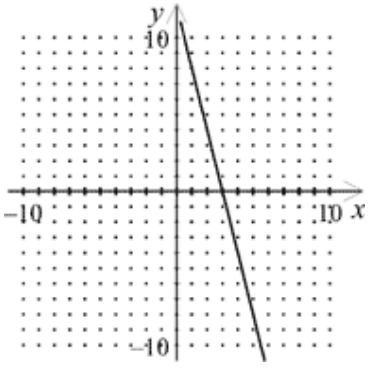
c.



b.



d.

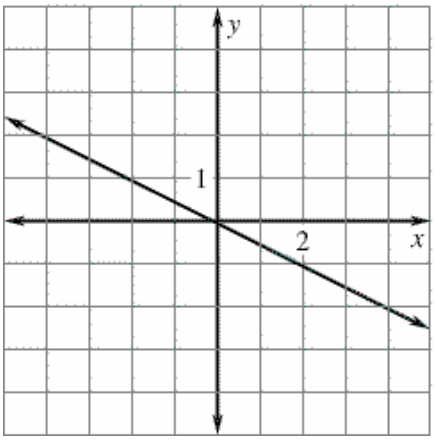


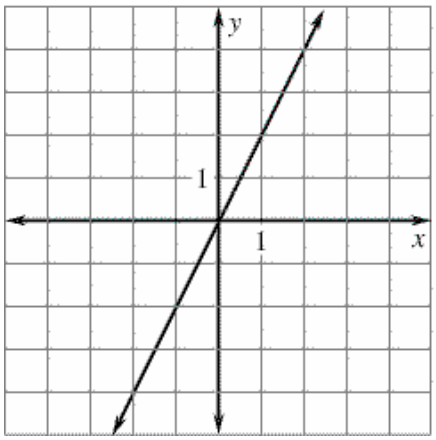
Graph:

____ 82. $y = 2x$

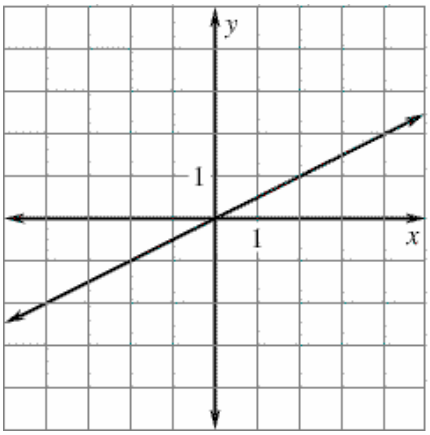
a.

c.

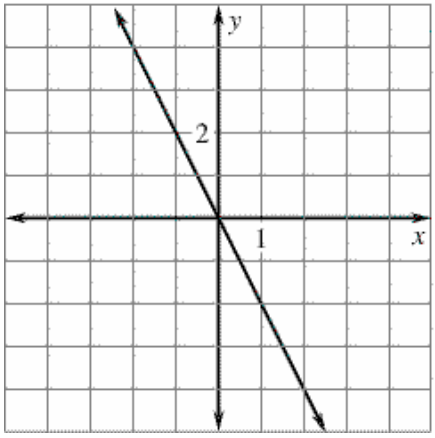




b.



d.

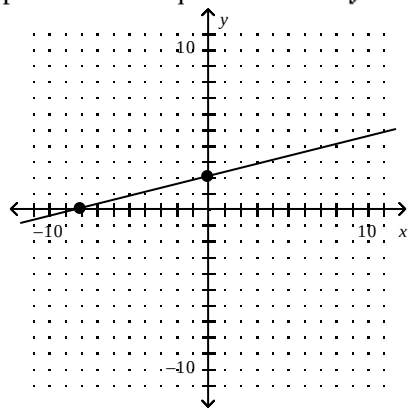


____ 83. State the *x*- and *y*-intercepts of the line with the equation $y = 3x - 3$.

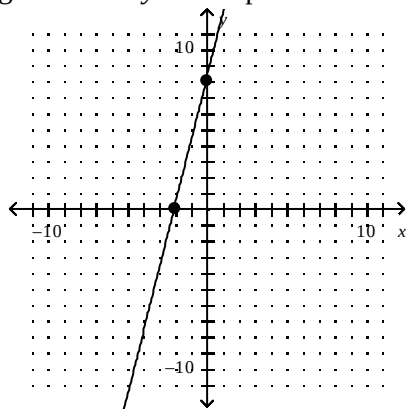
a. *x*-intercept: 3; *y*-intercept: –1
b. *x*-intercept: –3; *y*-intercept: 1
c. *x*-intercept: 1; *y*-intercept: –3
d. *x*-intercept: –1; *y*-intercept: 3

____ 84. Graph the linear equation $-8x + 2y = -16$ by finding the *x*- and *y*-intercepts.

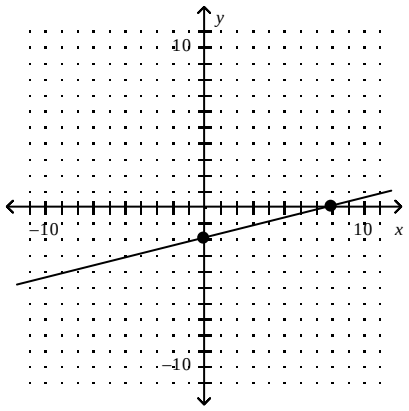
a.



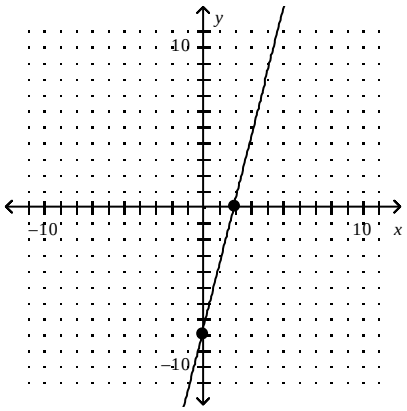
c.



b.



d.



____ 85. Find the slope of the line passing through the points $A(6, 8)$ and $B(-4, -5)$.

a. $\frac{10}{13}$

c. $-\frac{12}{11}$

b. $-\frac{11}{12}$

d. $\frac{13}{10}$

____ 86. Find the slope of the line that contains $(9, -6)$ and $(-3, 8)$.

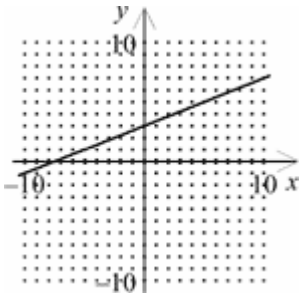
a. $-\frac{6}{7}$

c. $-\frac{7}{6}$

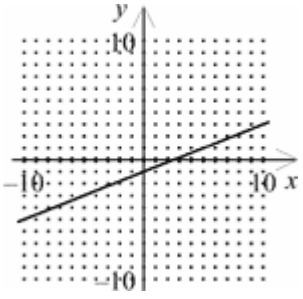
b. undefined

d. 0

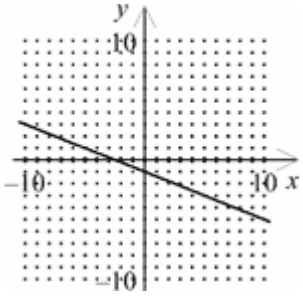
____ 87. The equation $y = \frac{2}{5}x + 3$ is graphed below. Which graph shows the result of changing the 3 in the equation to -1?

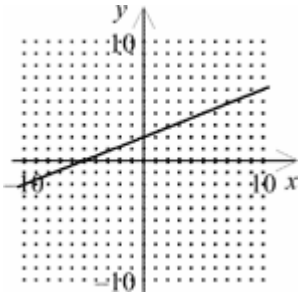


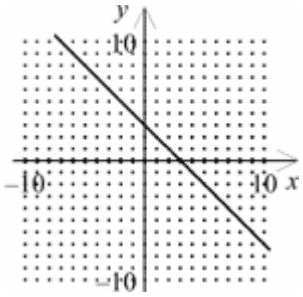
a.



c.



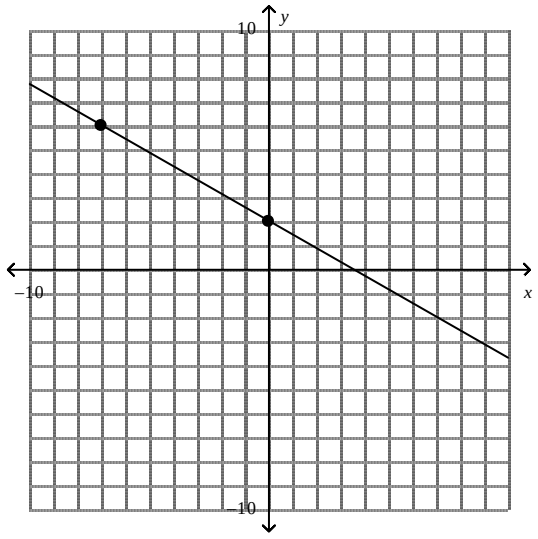
b. 

d. 

____ 88. The amount a spring will stretch *S* is proportional to the force (or weight) *F* attached to the spring. If a spring stretches 8.9 inches when 20 pounds are attached, how far will it stretch when 70 pounds are attached?

a. 2.54 inches
b. 3.54 inches
c. 31.15 inches
d. 30.15 inches

____ 89. Write an equation in slope-intercept form of the graph.



a. $y = -\frac{7}{4}x + 2$
b. $y = -\frac{4}{7}x + 2$
c. $y = \frac{4}{7}x + 2$
d. $y = \frac{7}{4}x + 2$

____ 90. Write an equation of the line containing the points $(1, 2)$ and $(-3, 6)$.

a. $3x + 3y = 9$
b. $15x + 6y = 12$
c. $6x + 15y = 45$
d. $-3x + 3y = 9$

____ 91. Write an equation in point-slope form of the line that passes through the points $(-3, -2)$ and $(6, -3)$.

a. $y + 3 = -\frac{1}{9}(x + 2)$
b. $y + 2 = -\frac{1}{9}(x + 3)$
c. $y + 3 = -9(x + 2)$
d. $y + 2 = -9(x + 3)$

____ 92. Write an equation of the line that goes through the point $(9, -8)$ and is perpendicular to the line $y = 3x - 1$.

a. $y = 3x - 35$
c. $y = \frac{1}{3}x - 5$

b. $y = -3x - 19$

d. $y = -\frac{1}{3}x - 5$

Graph the solution.

____ 93. $x - 8 \leq -4$

a. 

b. 

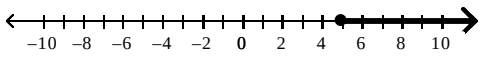
c. 

d. 

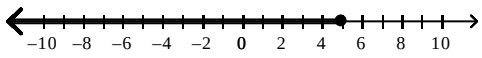
Solve the inequality. Then identify the graph of the solution.

____ 94. $-2.3x \geq -11.5$

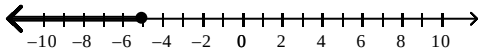
a. $x \geq 5$



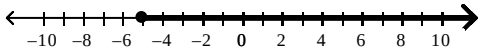
b. $x \leq 5$



c. $x \leq -5$



d. $x \geq -5$



Solve.

____ 95. $13b - 6 \leq 14b + 8$

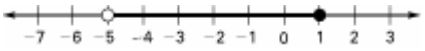
a. $b \geq 2$ b. $b \leq 14$ c. $b \geq -14$ d. $b = 2$

Solve. Graph your solution.

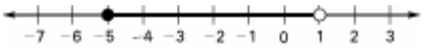
____ 96. $x + 3 \leq 4$ and $-2x < 10$

a. $-2 \leq x < 1$

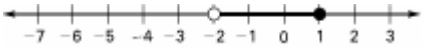
b. $-5 < x \leq 1$



c. $-5 \leq x < 1$



d. $-2 < x \leq 1$



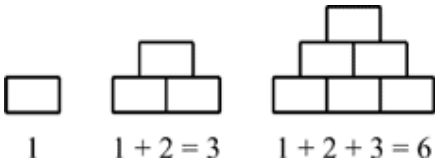
____ 97. What is the domain of the relation {(0, 4), (4, 9), (5, 2), (10, 4)}

a. 0, 4, 5, 10
b. 0, 4, 9, 10
c. 0, 2, 9, 10
d. 0, 2, 4, 10

____ 98. Find the slope and *y*-intercept of the line with the equation $-10x + 2y = 28$.

a. $m = 5, b = 14$
b. $m = -5, b = -14$
c. $m = 14, b = 5$
d. $m = -14, b = -5$

____ 99. If the pattern shown is continued, what would be the total number of rectangles in the eighth stage of the pattern?



a. 36 b. 28 c. 21 d. 45

____ 100. At Dr. Carrey's clinic, 42% more patients are treated for flu symptoms in the winter than in the summer. Which is an algebraic expression for the number of flu cases in the winter?

a. $(0.42)s$
b. $s + (0.42)s$
c. $-(0.58)w$
d. $w - (0.58)w$