

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem. Express your answer as an integer or simplified fraction.

$$1) \frac{1}{5}(x + 15) - \frac{1}{6}(x - 6) = x - 5 \quad 1) \underline{\hspace{2cm}}$$

A) $\left\{ \frac{90}{29} \right\}$

B) $\left\{ \frac{30}{29} \right\}$

C) $\left\{ \frac{270}{29} \right\}$

D) $\left\{ \frac{210}{29} \right\}$

$$2) 7x - (5x - 1) = 2 \quad 2) \underline{\hspace{2cm}}$$

A) $-\frac{1}{12}$

B) $-\frac{1}{2}$

C) $\frac{1}{12}$

D) $\frac{1}{2}$

$$3) \frac{x}{6} - 4 = \frac{x}{3} - 3 \quad 3) \underline{\hspace{2cm}}$$

A) 14

B) - 14

C) - 6

D) - 2

$$4) -4(4x + 4) - 1 = -5(x + 1) + 3x \quad 4) \underline{\hspace{2cm}}$$

A) $\left\{ -\frac{2}{3} \right\}$

B) $\left\{ \frac{4}{7} \right\}$

C) $\left\{ \frac{1}{7} \right\}$

D) $\left\{ -\frac{6}{7} \right\}$

$$5) \frac{5x - 7}{5} = \frac{7x + 3}{2} \quad 5) \underline{\hspace{2cm}}$$

A) $\frac{29}{45}$

B) $-\frac{29}{25}$

C) $-\frac{1}{25}$

D) $\frac{1}{45}$

$$6) \frac{x}{16} - \frac{5}{8} = \frac{x + 6}{8} \quad 6) \underline{\hspace{2cm}}$$

A) - 17

B) - 22

C) - 16

D) - 11

$$7) \text{Solve: } \frac{x - 2}{3} - \frac{x - 3}{6} = \frac{3 - x}{2} - 3 \quad 7) \underline{\hspace{2cm}}$$

A) - 3

B) 3

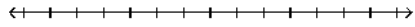
C) - 2

D) 2

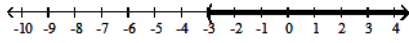
Solve the inequality and graph. Express your answer in interval notation.

8) $7x - 3 > 6x - 6$

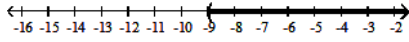
8) _____



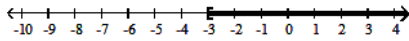
A) $(-3, \infty)$



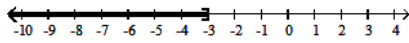
B) $(-9, \infty)$



C) $[-3, \infty)$

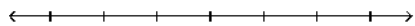


D) $(-\infty, -3]$

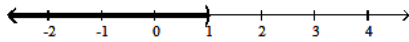


9) $-3(3x + 6) < -12x - 15$

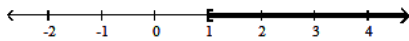
9) _____



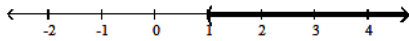
A) $(-\infty, 1)$



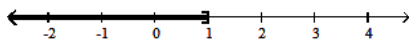
B) $[1, \infty)$



C) $(1, \infty)$

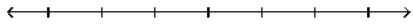


D) $(-\infty, 1]$



10) $18x + 3 > 3(5x - 1)$

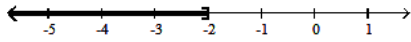
10) _____



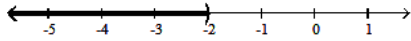
A) $(-2, \infty)$



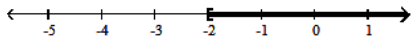
B) $(-\infty, -2]$



C) $(-\infty, -2)$

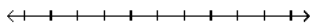


D) $[-2, \infty)$

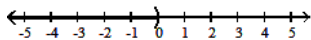


11) $-4(-2 - x) < 6x + 19 - 11 - 2x$

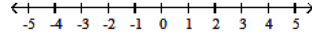
11) _____



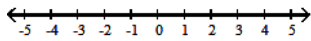
A) $(-\infty, 0)$



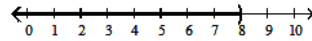
B) \emptyset



C) $(-\infty, \infty)$

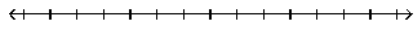


D) $(-\infty, 8)$

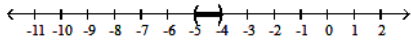


12) $-23 \leq -4x - 3 \leq -19$

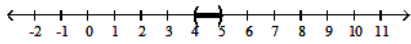
12) _____



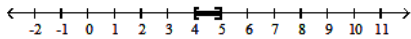
A) $(-5, -4)$



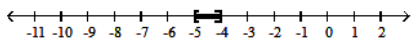
B) $(4, 5)$



C) $[4, 5]$



D) $[-5, -4]$



Solve the formula for the specified variable.

13) $S = 2\pi rh + 2\pi r^2$ for h

13) _____

A) $h = S - r$

B) $h = 2\pi(S - r)$

C) $h = \frac{S}{2\pi r} - 1$

D) $h = \frac{S - 2\pi r^2}{2\pi r}$

14) $7x + 10y = 19$ for y

14) _____

A) $y = 7x - 19$

B) $y = -\frac{7}{10}x + \frac{19}{10}$

C) $y = \frac{7}{10}x + \frac{19}{10}$

D) $-7x - 10y = -19$

15) $F = \frac{9}{5}C + 32$ for C

15) _____

A) $C = \frac{5}{9}(F - 32)$

B) $C = \frac{9}{5}(F - 32)$

C) $C = \frac{5}{F - 32}$

D) $C = \frac{F - 32}{9}$

16) Solve: $D = \frac{4}{5}(mx - mb)$ for m

16) _____

A) $m = \frac{4D}{5(x + b)}$

B) $m = \frac{5D}{4(x - b)}$

C) $m = \frac{4D}{5(x - b)}$

D) $m = \frac{5D}{4(x + b)}$

Solve the problem.

17) Find the Celsius temperature (to the nearest degree) when Fahrenheit temperature is 95° by solving the equation $95 = \frac{9}{5}C + 32$, where F is the Fahrenheit temperature (in degrees) and C is the Celsius temperature.

17) _____

A) 177°C

B) 49°C

C) 35°C

D) 203°C

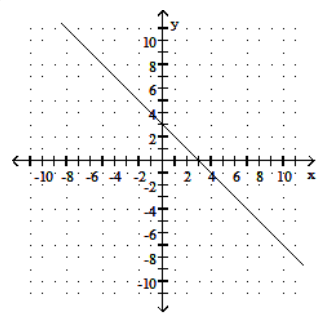
- 18) At a local grocery store the demand for ground beef is approximately 50 pounds per week when the price per pound is \$4, but is only 40 pounds per week when the price rises to \$5.50 per pound. Assuming a linear relationship between the demand x and the price per pound p , express the price as a function of demand. Use this model to predict the demand if the price rises to \$5.80 per pound. 18) _____
- A) $p = 11.5x + -0.15$; 40 pounds B) $p = - 0.15x + 11.5$; 38 pounds
 C) $p = - 0.15x - 11.5$; 40 pounds D) $p = 0.15x + 11.5$; 38 pounds

- 19) Assume that the price per unit d of a certain item to the consumer is given by the equation $d = 35 - .10x$, where x is the number of units in demand. The price per unit from the supplier is given by the equation $s = .2x + 20$, where x is the number of units supplied. Find the equilibrium price and the equilibrium quantity. 19) _____
- A) equilibrium price: \$30 per unit; equilibrium quantity: 50 units
 B) equilibrium price: \$20 per unit; equilibrium quantity: 50 units
 C) equilibrium price: \$50 per unit; equilibrium quantity: 30 units
 D) equilibrium price: \$35 per unit; equilibrium quantity: 50 units

- 20) A piece of equipment was purchased by a company for \$10,000 and is assumed to have a salvage value of \$3,000 in 10 years. If its value is depreciated linearly from \$10,000 to \$3,000, find a linear equation in the form $V = mt + b$, t time in years, that will give the salvage value at any time t , $0 \leq t \leq 10$. 20) _____
- A) $T = - 700V + 10,000$ B) $V = - 700t + 10,000$
 C) $V = - 700t - 10,000$ D) $V = 700t + 10,000$

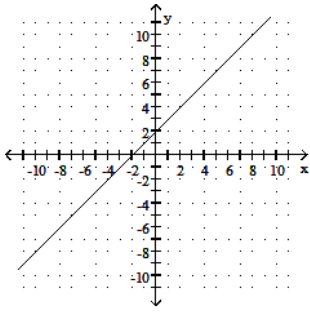
- 21) You have \$50,000 and wish to invest part at 10% and the rest at 6%. How much should be invested at each rate to produce the same return as if it all had been invested at 9%? 21) _____
- A) \$37,000 at 6%, \$13,000 at 10% B) \$37,000 at 10%, \$13,000 at 6%
 C) \$37,500 at 10%, \$12,500 at 6% D) \$37,500 at 6%, \$12,500 at 10%

Determine whether the slope of the line is positive, negative, zero, or undefined. 22) _____



- A) negative B) undefined C) positive D) zero

23)



23) _____

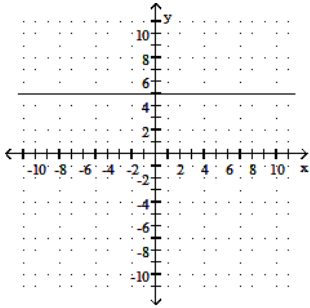
A) zero

B) negative

C) positive

D) undefined

24)



24) _____

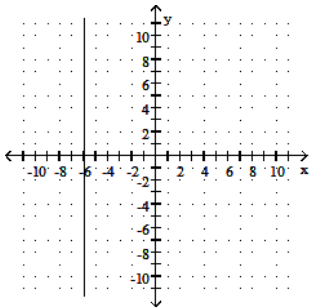
A) positive

B) undefined

C) negative

D) zero

25)



25) _____

A) positive

B) zero

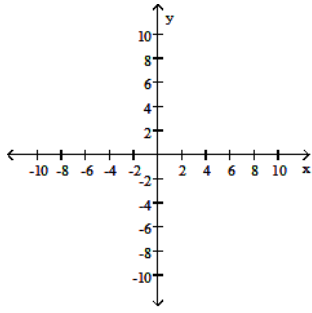
C) undefined

D) negative

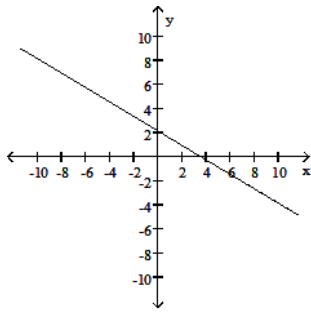
Graph the linear equation and determine its slope, if it exists.

26) $3x + 5y = 11$

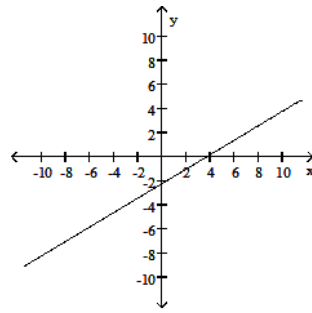
26) _____



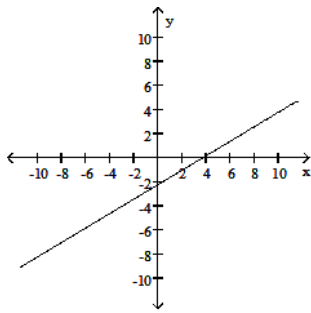
A) slope: $-\frac{3}{4}$



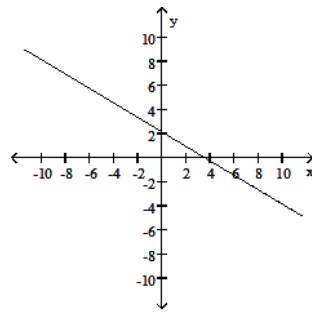
B) slope: $\frac{3}{4}$



C) slope: $-\frac{3}{4}$

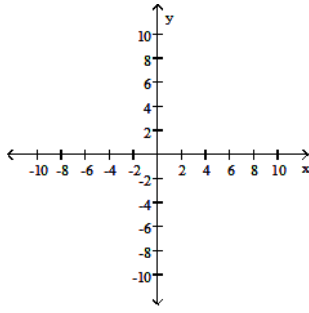


D) slope: $\frac{3}{4}$



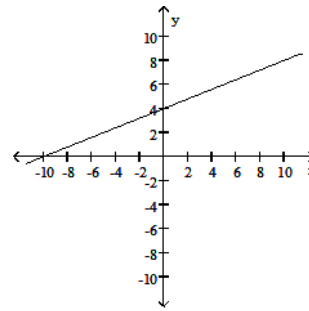
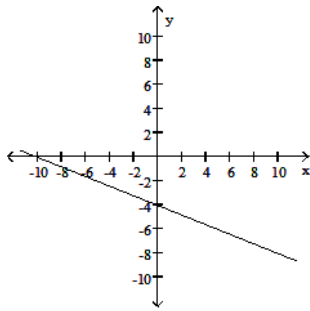
27) $2x - 5y = 20$

27) _____



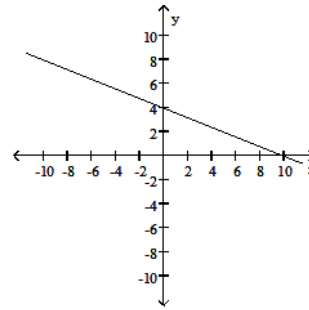
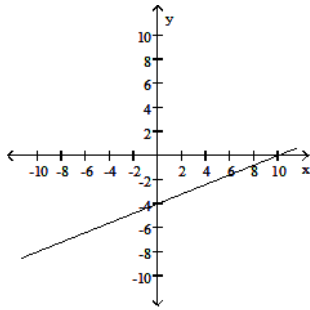
A) slope = $-\frac{2}{5}$

B) slope = $\frac{2}{5}$



C) slope = $\frac{2}{5}$

D) slope = $-\frac{2}{5}$



Find the slope and y intercept of the graph of the equation.

28) $y = 3x - 6$

28) _____

A) Slope = 3, y intercept = 6

B) Slope = 6, y intercept = 3

C) Slope = -6, y intercept = 3

D) Slope = 3, y intercept = -6

29) $y = -4x + 6$ 29) _____
 A) Slope = 6, y intercept = -4
 B) Slope = -6, y intercept = -4
 C) Slope = 4, y intercept = -6
 D) Slope = -4, y intercept = 6

30) $y = \frac{5}{2}x - \frac{7}{2}$ 30) _____
 A) Slope = $\frac{5}{2}$; y intercept = $\frac{7}{2}$
 B) Slope = $\frac{7}{2}$; y intercept = $\frac{5}{2}$
 C) Slope = $-\frac{7}{2}$; y intercept = $\frac{5}{2}$
 D) Slope = $\frac{5}{2}$; y intercept = $-\frac{7}{2}$

31) $y = -\frac{4}{5}x + \frac{32}{5}$ 31) _____
 A) Slope = $\frac{4}{5}$; y intercept = $\frac{32}{5}$
 B) Slope = $-\frac{4}{5}$; y intercept = $\frac{32}{5}$
 C) Slope = $\frac{4}{5}$; y intercept = $\frac{22}{5}$
 D) Slope = $\frac{5}{4}$; y intercept = $\frac{22}{5}$

32) $y = -\frac{x}{2} + 3$ 32) _____
 A) Slope = $-\frac{1}{2}$; y intercept = -3
 B) Slope = 3; y intercept = $-\frac{1}{2}$
 C) Slope = $-\frac{1}{2}$; y intercept = 3
 D) Slope = 3; y intercept = $\frac{1}{2}$

33) $y = x - 5$ 33) _____
 A) Slope = -5; y intercept = -1
 B) Slope = 0; y intercept = 5
 C) Slope = 1; y intercept = -5
 D) Slope = -5; y intercept = 1

Write an equation of the line with the indicated slope and y intercept.

34) Slope = 4, y intercept = -5 34) _____
 A) $y = -4x - 5$ B) $y = 4x - 5$ C) $y = 5x + 4$ D) $y = 5x - 4$

35) Slope = -4, y intercept = 6 35) _____
 A) $y = -4x - 6$ B) $y = -4x + 6$ C) $y = 4x + 6$ D) $y = 6x - 4$

36) Slope = $\frac{5}{2}$; y intercept = $-\frac{3}{2}$ 36) _____
 A) $y = -\frac{3}{2}x + \frac{5}{2}$ B) $y = \frac{5}{2}x - \frac{3}{2}$ C) $y = \frac{5}{2}x + \frac{3}{2}$ D) $y = \frac{3}{2}x - \frac{5}{2}$

37) Slope = $-\frac{3}{4}$; y intercept = $\frac{21}{4}$ 37) _____
 A) $y = -\frac{4}{3}x + \frac{21}{4}$ B) $y = -\frac{3}{4}x + \frac{21}{4}$ C) $y = -\frac{3}{4}x - \frac{21}{4}$ D) $y = \frac{3}{4}x + \frac{13}{4}$

38) Slope = $-\frac{1}{2}$; y intercept = -2

38) _____

A) $y = -2x + \frac{1}{2}$

B) $y = \frac{x}{2} - 2$

C) $y = -2x - \frac{1}{2}$

D) $y = -\frac{x}{2} - 2$

39) Slope = 1; y intercept = 1

39) _____

A) $y = 1x - 1$

B) $y = x + 1$

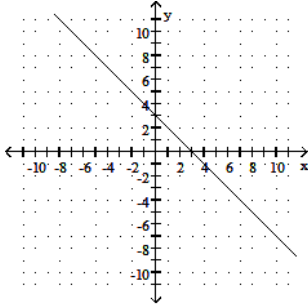
C) $y = -x + 1$

D) $y = 1x + 1$

Provide an appropriate response.

40) Use the graph to find the slope-intercept form of the equation of the line.

40) _____



A) $y = x + 3$

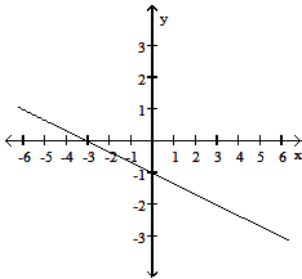
B) $y = x - 3$

C) $y = -x + 3$

D) $y = 3x$

41) Write the equation of the line in the following graph.

41) _____



A) $f(x) = -\frac{1}{3}x + 1$

B) $f(x) = -\frac{1}{3}x - 1$

C) $f(x) = \frac{1}{3}x - 1$

D) $f(x) = \frac{1}{3}x + 1$

42) Find the slope of the line $3x + 4y = 11$.

42) _____

A) $-\frac{3}{4}$

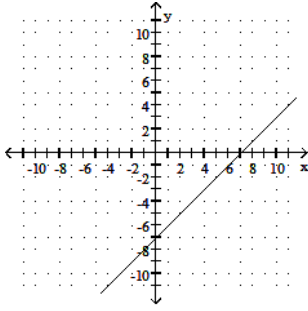
B) $\frac{3}{4}$

C) 0

D) $-\frac{4}{3}$

43) Use the graph to find the slope, x-intercept and y-intercept of the line.

43) _____

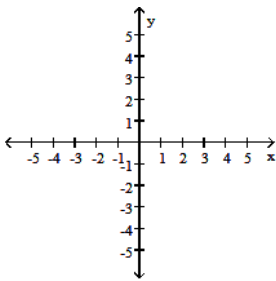


- A) slope = -1
x-intercept = (7, 0)
y-intercept = (0, -7)
- C) slope = 1
x-intercept = (0, 7)
y-intercept = (-7, 0)

- B) slope = - 1
x-intercept = (-7, 0)
y-intercept = (0, 7)
- D) slope = 1
x-intercept = (7, 0)
y-intercept = (0, -7)

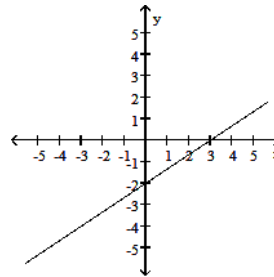
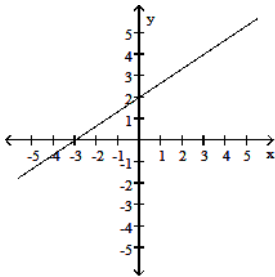
44) Graph the linear function defined by $f(x) = \frac{2}{3}x + 2$ and indicate the slope and intercepts.

44) _____

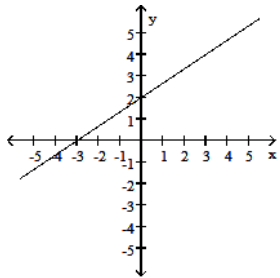


- A) x-intercept = 2; y-intercept = -3; slope $\frac{2}{3}$

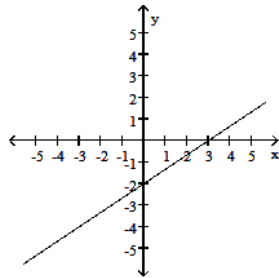
- B) x-intercept = -2; y-intercept = 3; slope $\frac{2}{3}$



C) x-intercept = -3; y-intercept = 2; slope $\frac{2}{3}$



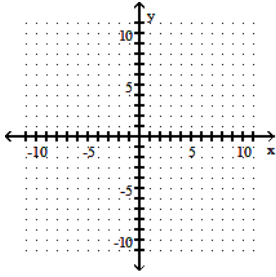
D) x-intercept = 3; y-intercept = -2; slope $\frac{2}{3}$



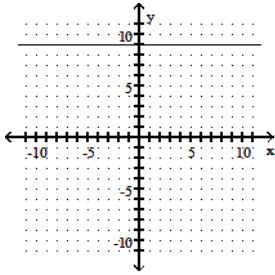
Graph the equation.

45) $72 + 8y = 0$

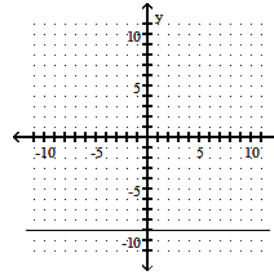
45) _____



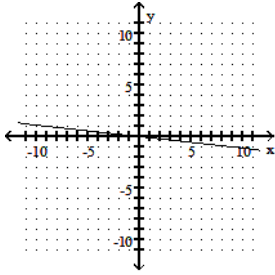
A)



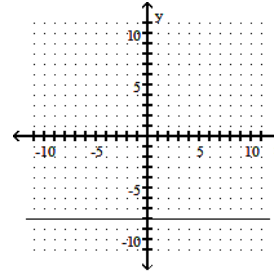
B)



C)



D)



Provide an appropriate response.

46) Find the line passing through the two points. Write the equation in standard form.

46) _____

(10, 9) and (10, 1)

A) $x = 10$

B) $x + y = 11$

C) $x + y = 19$

D) $y = 9$

47) Find the line passing through the two points. Write the equation in standard form.

47) _____

(-3, 6) and (6, 6)

A) $y = 6$

B) $-2x - y = 0$

C) $-x - 2y = 0$

D) $x = -2$

Write the slope-intercept equation ($y = mx + b$) for a line with the given characteristics.

48) $m = -4$, y -intercept $(0, -7)$

A) $y = -4x$

B) $y = -4x - 7$

C) $4x + y = -7$

D) $y = -7x - 4$

48) _____

49) $m = 3$, passing through $(1, -2)$

A) $y = 3x - 5$

B) $y = 5x - 3$

C) $y = 3x$

D) $y - 5 = 3x$

49) _____

Provide an appropriate response.

50) Find the standard form of the equation of the line with slope of $-\frac{2}{7}$ and passing through $(4, 4)$.

A) $7x + 2y = -36$

B) $2x + 7y = -36$

C) $2x - 7y = 36$

D) $2x + 7y = 36$

50) _____

Find the slope of the line containing the given points.

51) $(9, -7)$; $(-6, 6)$

A) $\frac{15}{13}$

B) $-\frac{15}{13}$

C) $-\frac{13}{15}$

D) $\frac{13}{15}$

51) _____

52) $(6, 1)$ and $(6, -4)$

A) 0

B) $-\frac{1}{4}$

C) -4

D) Undefined

52) _____

53) $(-5, 2)$ and $(0, 2)$

A) $-\frac{5}{2}$

B) 0

C) $\frac{5}{2}$

D) Undefined

53) _____

Provide an appropriate response.

54) Find the standard form of the equation of the line passing through the two points.

$(2, -6)$ and $(-9, 6)$

A) $-8x + 15y = -18$

B) $8x - 15y = -18$

C) $-12x + 11y = -42$

D) $12x + 11y = -42$

54) _____

55) Write the equation of a line that passes through $(3, 9)$ and $(0, -7)$. Write the final answer in the form $Ax + By = C$ where A , B , and C are integers with no common divisors (other than ± 1) and $A > 0$.

A) $16x - 3y = 21$

B) $16x - 3y = -21$

C) $-16x + 3y = 21$

D) $3x - 16y = 21$

55) _____

56) Write the equation of a line that passes through $(-1, 4)$ and $(5, -1)$. Write the final answer in the form $Ax + By = C$ where A , B , and C are integers with no common divisors (other than ± 1) and $A > 0$.

A) $5x - 6y = 19$

B) $5x + 6y = -19$

C) $-5x + 6y = 19$

D) $5x + 6y = 19$

56) _____

Solve the problem.

57) The cost of manufacturing a computer part is related to the quantity produced, x , during a production run. When 100 parts are produced, the cost is \$300. When 600 parts are produced, the cost is \$4800. Find an equation of the line relating quantity produced to cost. Write the final answer in the form $C = mx + b$.

A) $C = 9x - 600$

B) $C = 600x + 9$

C) $C = 9x$

D) $C = 9x + 600$

57) _____

58) The cost for labor associated with fixing a washing machine is computed as follows: There is a fixed charge of \$25 for the repairman to come to the house, to which a charge of \$20 per hour is added. Find an equation that can be used to determine the labor cost, C , of a repair that takes x hours. Write the final answer in the form $C = mx + b$. 58) _____

- A) $C = -20x + 25$ B) $C = 25x + 20$ C) $C = 45x$ D) $C = 20x + 25$

59) A small company that makes hand-sewn leather shoes has fixed costs of \$320 a day, and total costs of \$1200 per day at an output of 20 pairs of shoes per day. Assume that total cost C is linearly related to output x . Find an equation of the line relating output to cost. Write the final answer in the form $C = mx + b$. 59) _____

- A) $C = 44x + 1520$ B) $C = 44x + 320$ C) $C = 60x + 1520$ D) $C = 60x + 320$

60) Using a phone card to make a long distance call costs a flat fee of \$0.85 plus per \$0.19 minute starting with the first minute. Find the total cost of a phone call which lasts 8 minutes. 60) _____

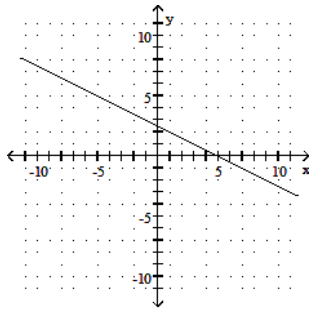
- A) \$1.52 B) \$8.16 C) \$6.00 D) \$2.37

61) The mathematical model $C = 600x + 30,000$ represents the cost in dollars a company has in manufacturing x items during a month. Using this model, how much does it cost to produce 600 items? 61) _____

- A) \$50.00 B) \$0.08 C) \$390,000 D) \$360,000

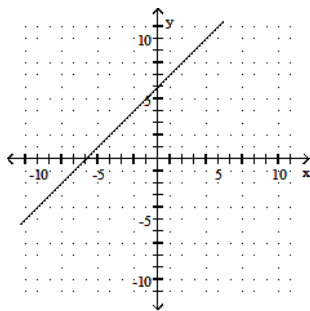
Use the graph to find the average rate of change.

62) _____



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

63)



63) _____

A) -1

B) 6

C) 1

D) -6

Provide an appropriate response.

64) Given two points (x_1, y_1) and (x_2, y_2) , the ratio of the change in y to the change in x is called.

64) _____

A) x-intercept

B) slope

C) equilibrium point

D) break-even point

Use the REGRESSION feature on a graphing calculator.

65) The paired data below consists of the temperature on randomly chosen days and the amount of a certain kind of plant grew (in millimeters).

65) _____

Temp, x	62	76	50	51	71	46	51	44	79
Growth, y	36	39	50	13	33	33	17	6	16

Find the linear function that predicts a plant's growth as a function of the temperature. Round your answer to two decimal places.

A) $y = -0.06x^2 + 7.20x - 191.23$ B) $y = 14.57x + 0.21$ C) $y = -9.19x^3 + 0.11x^2 - 2.90x + 6.54$ D) $y = 0.21x + 14.57$

66) The use of bottled water in the United States has shown a steady increase in recent years. The table shows the annual per capita consumption for the years 1995 - 2001.

66) _____

Year	1995	1996	1997	1998	1999	2000	2001
Gallons/person	4.4	5.1	5.7	6.4	7.3	8.0	10.2

With x being the years since 1995, find the linear function that represents this data. Round your answer to two decimal places.A) $y = 0.1x^2 + 0.29x + 4.57$ B) $y = 0.04x^3 - 0.23x^2 + 1.01x + 4.35$ C) $y = 0.89x + 4.07$ D) $y = 4.07x + 0.89$

Answer Key

Testname: UNTITLED1

- 1) C
- 2) D
- 3) C
- 4) D
- 5) B
- 6) B
- 7) C
- 8) A
- 9) A
- 10) A
- 11) B
- 12) C
- 13) D
- 14) B
- 15) A
- 16) B
- 17) C
- 18) B
- 19) A
- 20) B
- 21) C
- 22) A
- 23) C
- 24) D
- 25) C
- 26) A
- 27) C
- 28) D
- 29) D
- 30) D
- 31) B
- 32) C
- 33) C
- 34) B
- 35) B
- 36) B
- 37) B
- 38) D
- 39) B
- 40) C
- 41) B
- 42) A
- 43) D
- 44) C
- 45) B
- 46) A
- 47) A
- 48) B
- 49) A
- 50) D

Answer Key

Testname: UNTITLED1

- 51) C
- 52) D
- 53) B
- 54) D
- 55) A
- 56) D
- 57) A
- 58) D
- 59) B
- 60) D
- 61) C
- 62) D
- 63) C
- 64) B
- 65) D
- 66) C
- 67) C
- 68) A
- 69) C
- 70) C
- 71) D