

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

If $x = -4$ and $y = -2$, evaluate the expression.

1) $\frac{12 - 6x}{y + 2}$ 1) _____
 A) -9 B) 0 C) 3 D) undefined

Evaluate the expression.

2) $(-6)^3$ 2) _____
 A) 18 B) -216 C) -18 D) 216

3) $10 \cdot 2^3$ 3) _____
 A) 60 B) 80 C) 8000 D) 18

Evaluate the expression with the given replacement values.

4) x^5 ; $x = -3$ 4) _____
 A) -243 B) -15 C) 15 D) 243

5) $7x^2$; $x = 5$ 5) _____
 A) 1225 B) 70 C) 245 D) 175

6) $-6x^3y$; $x = 4$ and $y = -7$ 6) _____
 A) 504 B) 672 C) -2688 D) 2688

Simplify the expression. Write the result using positive exponents only.

7) $\frac{8p^{-7}}{7p^8}$ 7) _____
 A) $\frac{8p^{56}}{7}$ B) $\frac{8}{7p^{15}}$ C) $\frac{8p^{15}}{7}$ D) $\frac{8}{7p^{56}}$

8) $\frac{x^4x^9}{x^5}$ 8) _____
 A) x^8 B) x^{33} C) x^{31} D) x^{18}

Use the product rule to simplify the expression. Write the result using exponents.

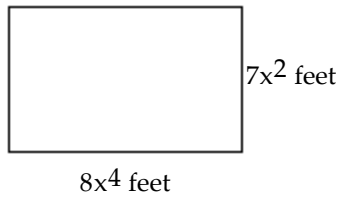
9) $8^9 \cdot 8^3$ 9) _____
 A) 8^{12} B) 64^{27} C) 8^{27} D) 64^{12}

10) $(4p^2)(-8p^8)$ 10) _____
 A) $32p^{10}$ B) $-32p^{10}$ C) $32p^{16}$ D) $-32p^{16}$

Solve.

- 11) The rectangle has width $7x^2$ feet and length $8x^4$ feet. Find its area as an expression in x .
(Area = length \cdot width)

11) _____



- A) $15x^8$ sq ft B) $56x^8$ sq ft C) $56x^6$ sq ft D) $15x^6$ sq ft

Use the power rule to simplify the expression.

12) $(5^4)^8$

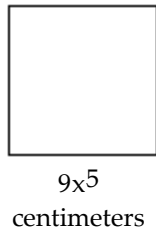
12) _____

- A) 25^4 B) 5^{12} C) 5^{32} D) 25^{32}

Solve.

- 13) The square has sides of length $9x^5$ centimeters. Find its area. ($A = s^2$)

13) _____



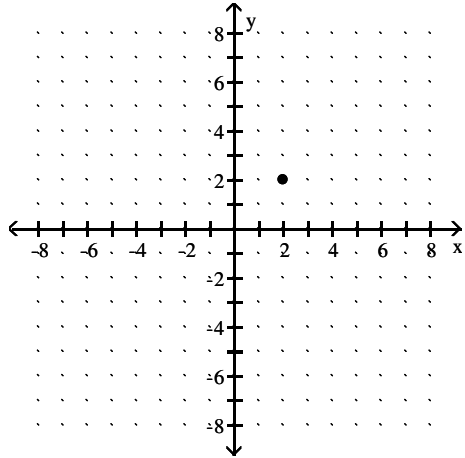
- A) $81x^{25}$ sq cm B) $18x^{25}$ sq cm C) $18x^{10}$ sq cm D) $81x^{10}$ sq cm

Plot the ordered pair. State in which quadrant or on which axis the point lies.

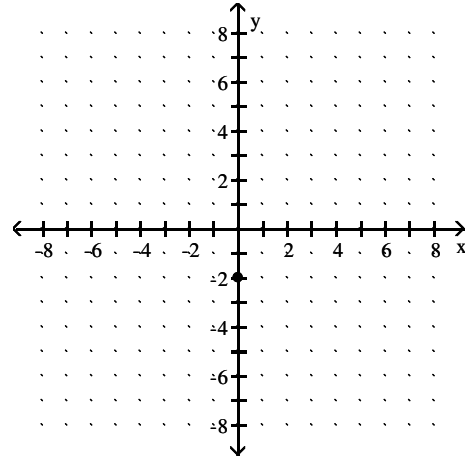
14) $(-2, 0)$

14) _____

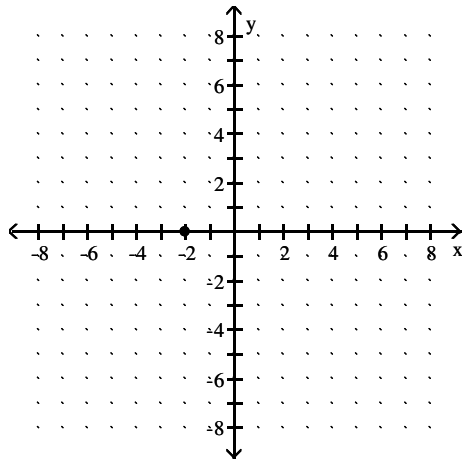
A) quadrant I



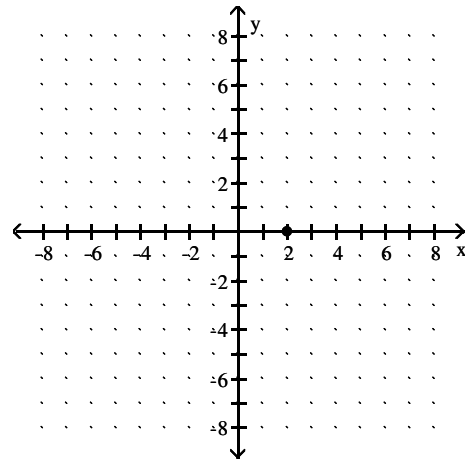
B) y-axis



C) x-axis



D) x-axis



Determine whether the ordered pair is a solution of the given linear equation.

15) $2x + 6y = -4$; $(0, -2)$

15) _____

A) yes

B) no

16) $x = 8y$; $(0, 0)$

16) _____

A) yes

B) no

Use the power rule and the power of a product or quotient rule to simplify the expression.

17) $(2a)^5$

17) _____

A) $32a^5$

B) $10a$

C) $10a^5$

D) $32a$

18) $(-4a)^2$

18) _____

A) $16a^2$

B) $-8a^2$

C) $-8a$

D) $16a$

19) $(x^7y)^2$

19) _____

A) $x^{14}y^2$

B) x^9y

C) $x^{14}y$

D) x^9y^3

20) $(4p^5)^4$

A) $256p^{20}$

B) $256p^5$

C) $4p^{20}$

D) $256p^9$

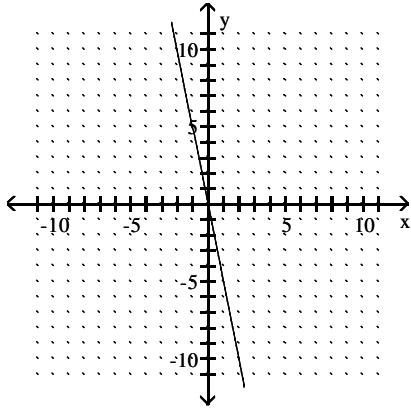
20) _____

Graph the linear equation.

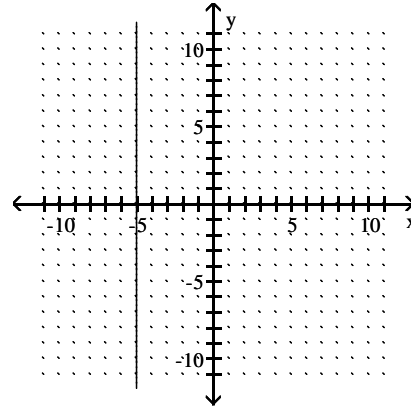
21) $x = -5y$

21) _____

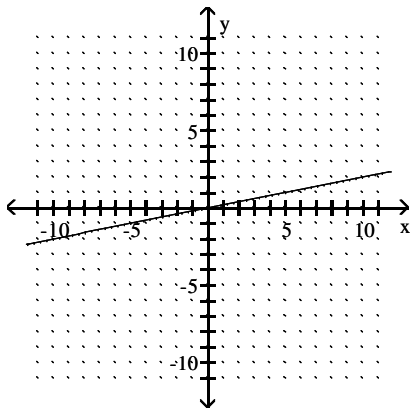
A)



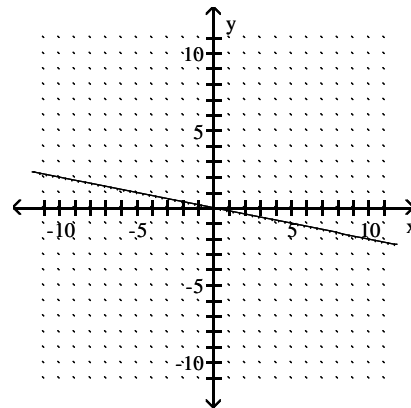
B)



C)



D)



Use the power rule and the power of a product or quotient rule to simplify the expression.

22) $\left(\frac{xy}{4}\right)^4$

A) $\frac{x^4y^4}{4}$

B) $\frac{x^4y^4}{256}$

C) $\frac{xy^4}{256}$

D) $\frac{xy}{256}$

22) _____

Use the quotient rule to simplify the expression.

23) $\frac{x^{14}}{x^{13}}$

23) _____

A) $x^{14} - x^{13}$

B) $\frac{1}{x}$

C) x

D) x^{27}

24) $\frac{s^{10}t^4}{s^2t}$

24) _____

A) $s^{12}t^5$

B) s^8t^4

C) s^8t^3

D) s^8t^2

Simplify the expression.

25) $-9y^0$

25) _____

A) -8

B) 0

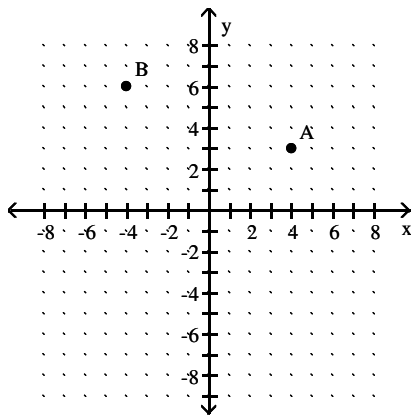
C) -9

D) 1

Find the x- and y-coordinates of the following labeled points.

26)

26) _____



A) $A(4, 3); B(-4, 6)$

B) $A(3, 24); B(6, -4)$

C) $A(4, 3); B(6, -4)$

D) $A(4, 6); B(3, 6)$

Solve the system of equations by the addition method.

27)
$$\begin{cases} \frac{x}{5} + \frac{y}{15} = 1 \\ \frac{x}{4} - \frac{y}{12} = 0 \end{cases}$$

27) _____

A) infinite number of solutions

B) no solution

C) $\left(\frac{15}{2}, \frac{5}{2}\right)$

D) $\left(\frac{5}{2}, \frac{15}{2}\right)$

Write a system of equations in x and y describing the situation. Do not solve the system.

28) An order of 4 orders of fries, 4 hamburgers, and 5 drinks costs \$17. An order of 3 orders of fries, 5 hamburgers, and 2 drinks costs \$15. All drinks are \$1. 28) _____

A) $\begin{cases} (4x)(4y) + 5 = 17 \\ (3x)(5y) + 2 = 15 \end{cases}$

B) $\begin{cases} 4x + 4y + 5 = 17 \\ 3x + 5y + 2 = 15 \end{cases}$

C) $\begin{cases} 4x + 4y + 1 = 17 \\ 3x + 5y + 1 = 15 \end{cases}$

D) $\begin{cases} 4x + 4y + 5 = 12 \\ 3x + 5y + 2 = 13 \end{cases}$

Find the degree of the following polynomial and determine whether it is a monomial, binomial, trinomial, or none of these.

29) $-17x$ 29) _____
 A) 0; binomial B) 0; monomial C) 1; monomial D) -17; monomial

30) $5y^6 - 5$ 30) _____
 A) 7; binomial B) 0; binomial C) 6; binomial D) 5; monomial

31) $-17s^5 - 7s + 5$ 31) _____
 A) 7; trinomial B) 5; trinomial C) 6; binomial D) 6; trinomial

Simplify.

32) If $P(x) = -3x + 6$, find $P(-5)$. 32) _____
 A) -9 B) 9 C) 21 D) -21

33) If $Q(x) = x^2 - 9$, find $Q(2)$. 33) _____
 A) -7 B) 49 C) 4 D) -5

34) If $P(x) = 7x^2 + 5$, find $P(0)$. 34) _____
 A) -5 B) 0 C) 5 D) 12

Simplify the following by combining like terms.

35) $4x^4 + 5x^4 - 3x^4$ 35) _____
 A) $-60x^4$ B) $6x^{12}$
 C) $6x^4$ D) cannot be simplified

36) $8x^5 + 3x^4 - 3x^5$ 36) _____
 A) $5x^5 + 3x^4$ B) $8x^{14}$
 C) $8x^4$ D) cannot be simplified

37) $-3r - 14r^4 - 15r^4 - 9r$ 37) _____
 A) $-41r^4$ B) $-41r$
 C) $-12r - 29r^4$ D) cannot be simplified

Perform the indicated operation.

38) $(8x + 11) + (10x + 7)$ 38) _____
 A) $18x + 18$ B) $18x^2 + 18$ C) $18x - 18$ D) $80x^2 + 77$

39) $(-19x - 10) - (6x + 13)$

A) $-13x + 3$

B) $-48x^2$

C) $-25x + 3$

D) $-25x - 23$

39) _____

40) $(-8y + 8) + (-5y^2 + 4y - 4)$

A) $-12y^2 - 5y + 4$

B) $-5y^2 - 4y + 12$

C) $-5y^2 + 4y + 4$

D) $-5y^2 - 4y + 4$

40) _____

41) $7z - (14 - 4z)$

A) $11z - 14$

B) $11z + 14$

C) $3z - 14$

D) $3z + 14$

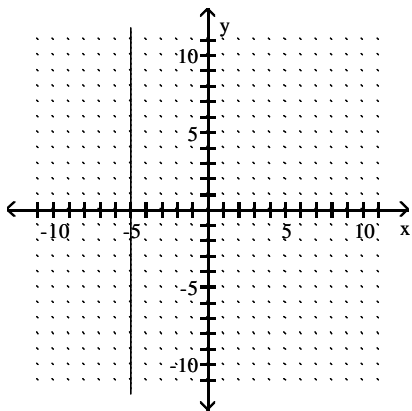
41) _____

Graph the linear equation.

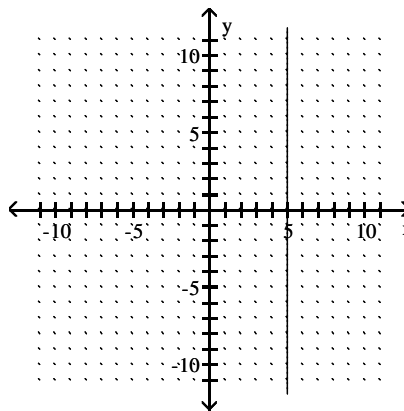
42) $x = 5$

42) _____

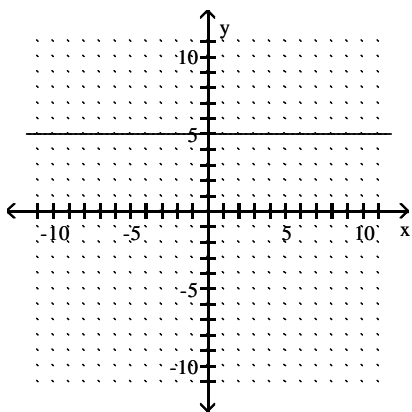
A)



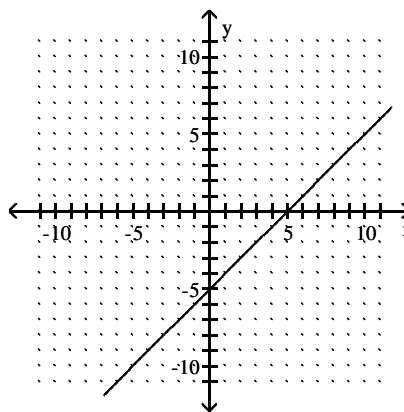
B)



C)



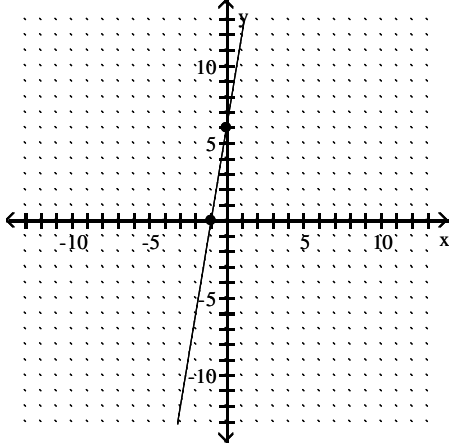
D)



Identify the intercepts.

43)

43) _____



A) $(-1, 0), (0, 6)$

B) $(-6, 0), (0, 6)$

C) $(-1, 0), (0, -6)$

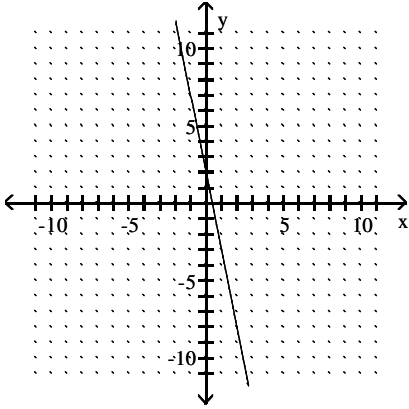
D) $(1, 0), (0, 6)$

Match the graph with its equation.

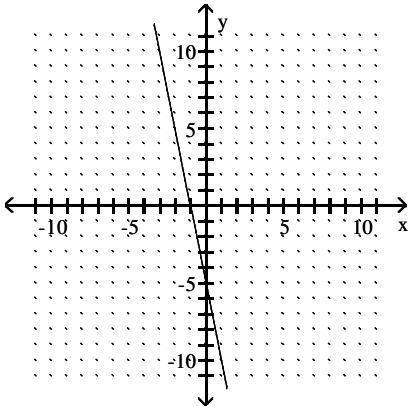
44) $y = -5x - 2$

44) _____

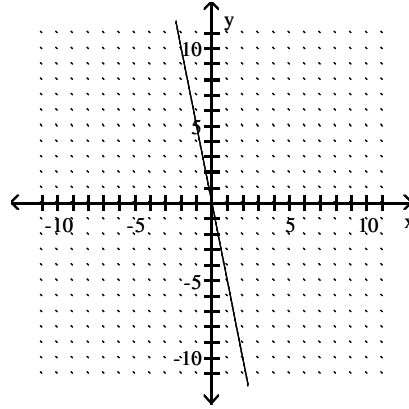
A)



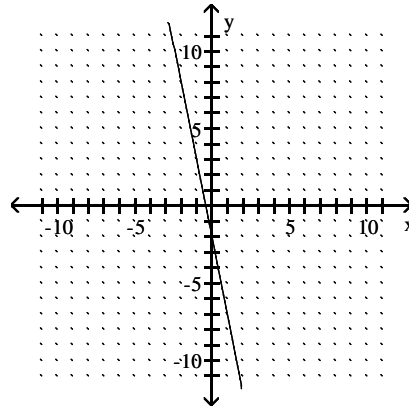
C)



B)



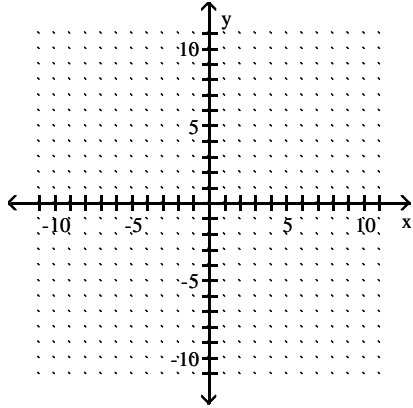
D)



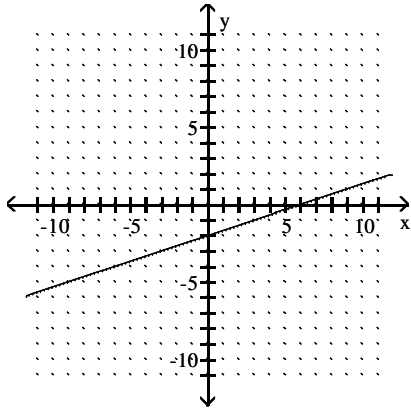
Graph the linear equation.

45) $-4x + 12y = 24$

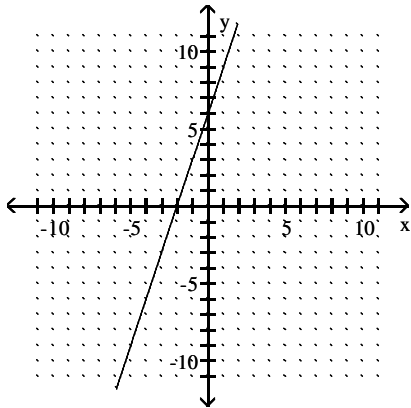
45) _____



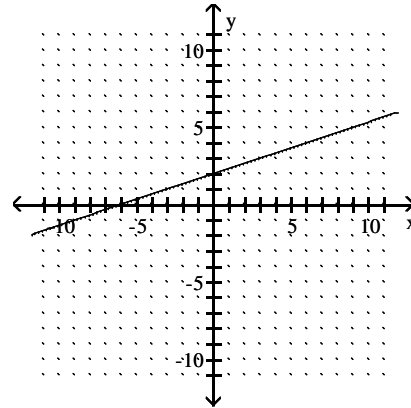
A)



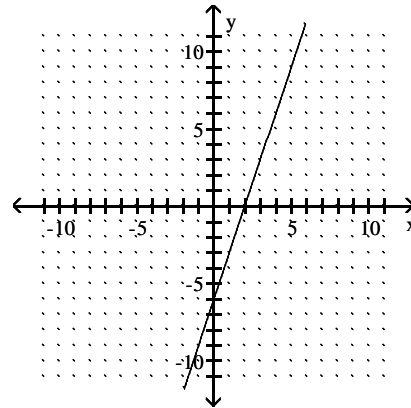
C)



B)



D)



Find the slope of the line.

46) $x + y = 3$

46) _____

A) $m = -1$

B) $m = 0$

C) $m = 1$

D) undefined slope

47) $y = 9$

47) _____

A) $m = 1$

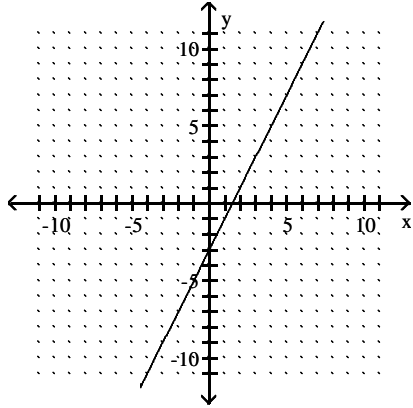
B) $m = 0$

C) undefined slope

D) $m = 9$

Find the slope of the line if it exists.

48)



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

B) 2

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

D) -2

48) _____

Perform the indicated operation.

49) Subtract x from $x^3 - 6x - 15$.

A) $x^3 - 7x - 15$

B) $-x^3 + 7x + 15$

C) $-x^3 - 7x + 15$

D) $x^3 - 5x - 15$

49) _____

50) Subtract $(-9x^2 - 3x + 2)$ from $(-x^2 - 6x + 7)$.

A) $8x^2 + 3x + 5$

B) $-10x^2 - 9x + 9$

C) $10x^2 - 3x + 9$

D) $8x^2 - 3x + 5$

50) _____

Simplify the expression. Write the result using positive exponents only.

51) $(-5)^{-4}$

A) -625

B) $-\frac{1}{625}$

C) 625

D) $\frac{1}{625}$

51) _____

52) -5^{-3}

A) $-\frac{1}{125}$

B) $\frac{1}{15}$

C) 125

D) -125

52) _____

Multiply.

53) $6x^5(-9x^4)$

A) $-54x^{20}$

B) $54x^9$

C) $-54x^9$

D) $54x^{20}$

53) _____

54) $(4.8x^3)(4x^7)$

A) $192x^{21}$

B) $1.92x^{10}$

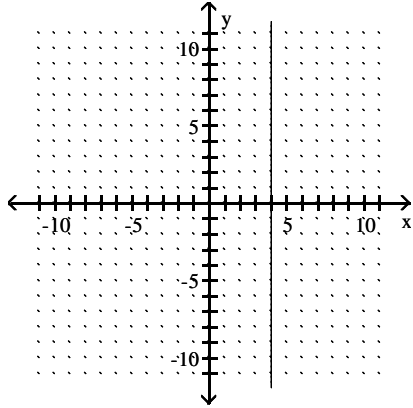
C) $19.2x^{10}$

D) $19.2x^{21}$

54) _____

Find the slope of the line if it exists.

55)



- A) undefined slope
C) 4

- B) -4
D) 0

55) _____

Find the slope of the line.

56) $x = -2$

- A) $m = 0$
C) $m = 1$

- B) $m = -1$
D) undefined slope

56) _____

Determine whether the pair of lines is parallel, perpendicular, or neither.

57) $6x + 2y = 8$

$27x + 9y = 39$

A) parallel

B) perpendicular

C) neither

57) _____

58) $y = 4x - 4$

$x - 4y = 5$

A) parallel

B) perpendicular

C) neither

58) _____

Multiply.

59) $-7x(9x + 6)$

A) $-63x^2 + 6x$

B) $-63x^2 - 42x$

C) $9x^2 - 42x$

D) $-105x^2$

59) _____

60) $-2x(2x^2 - 7x + 6)$

A) $-4x^3 - 7x + 6$

C) $-4x^3 + 14x^2 - 12x$

B) $-4x^2 + 14x - 12$

D) $-4x^3 + 14x^2 - 12$

60) _____

61) $\left(x - \frac{1}{2}\right)\left(x - \frac{3}{8}\right)$

A) $x^2 - \frac{7}{8}x + \frac{3}{16}$

B) $x^2 - \frac{19}{32}x - \frac{5}{32}$

C) $x^2 - \frac{19}{32}x + \frac{3}{16}$

D) $x^2 - \frac{1}{8}x + \frac{3}{16}$

61) _____

62) $(b - 9)(b - 7)$

A) $b^2 - 16b + 63$

B) $2b + 63$

C) $2b^2 - 63$

D) $b^2 + 16b - 63$

62) _____

63) $(6x - 10)(4x - 9)$

A) $10x^2 - 94x + 90$

B) $10x^2 - 94x - 94$

C) $24x^2 - 94x + 90$

D) $24x^2 - 94x - 94$

63) _____

Solve.

64) Khang and Hector live 18 miles apart in southeastern Missouri. They decide to bicycle towards each other and meet somewhere in between. Hector's rate of speed is 80% of Khang's. They start out at the same time and meet 2 hours later. Find Hector's rate of speed.

64) _____

- A) 4 mph B) 10 mph C) 5 mph D) 18 mph

65) To the nearest dollar, the average tuition at a public four-year college was \$3117 in 1997 and \$3317 in 1998. Use the ordered pairs (1997, \$3117) and (1998, \$3317) to find and interpret the slope of the line representing the change in tuition (to the nearest dollar per year).

65) _____

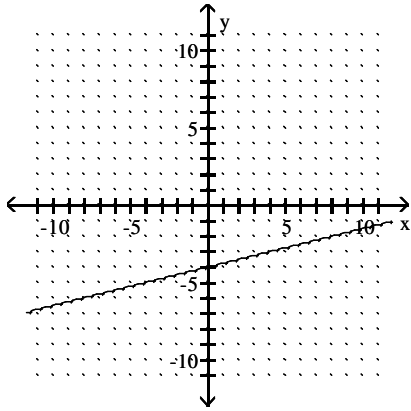
- A) tuition increased \$200 per year B) tuition decreased \$200 per year
C) tuition increased \$211 per year D) tuition increased \$217 per year

Graph the linear equation by finding and plotting its intercepts.

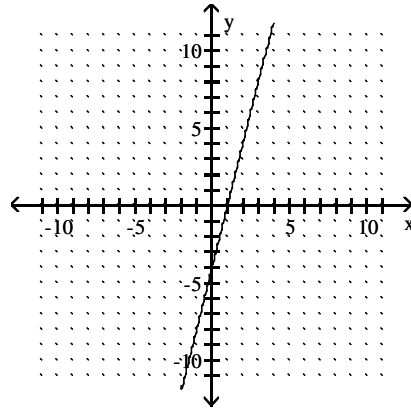
66) $y = \frac{1}{4}x - 4$

66) _____

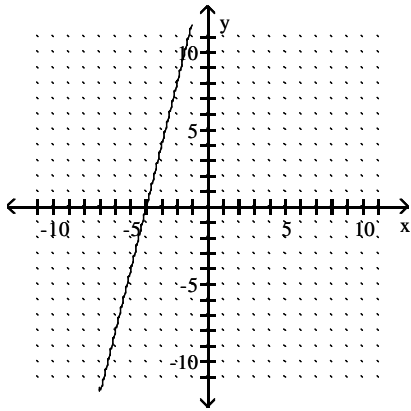
A)



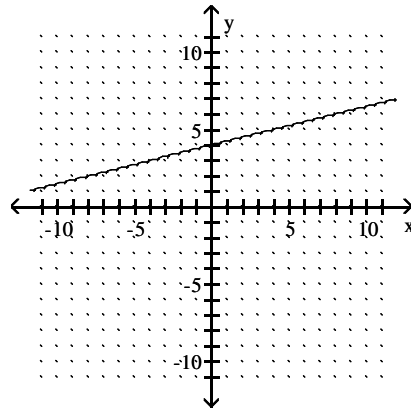
B)



C)

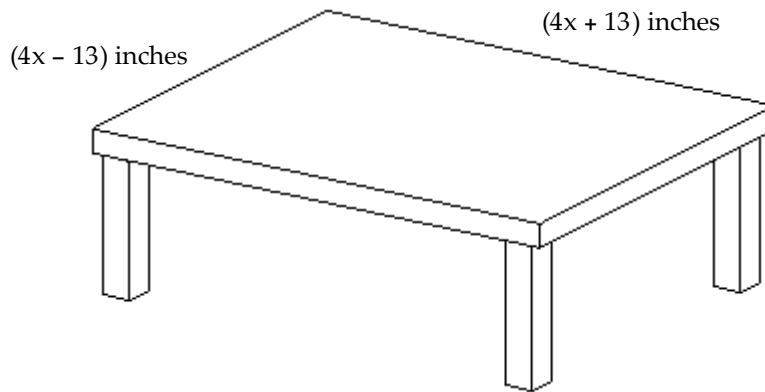


D)



Solve.

67) Find the area of the top of the table. Express the area as a product, then multiply and simplify. 67) _____



- A) $(16x^2 - 104x - 169)$ sq in. B) $(x^2 - 169)$ sq in.
C) $(16x^2 + 104x - 169)$ sq in. D) $(16x^2 - 169)$ sq in.

Multiply using the FOIL method.

68) $(b - 9)(b - 4)$ 68) _____
A) $2b^2 - 36$ B) $b^2 + 13b - 36$ C) $b^2 - 13b + 36$ D) $2b + 36$

Multiply.

69) $(p + 4q)(p - 4q)$ 69) _____
A) $p^2 - 16q^2$ B) $p^2 - 8pq - 16q^2$
C) $p^2 - 8q^2$ D) $p^2 + 8pq - 16q^2$

Simplify the expression. Write the result using positive exponents only.

70) 3^{-2} 70) _____
A) $\frac{1}{6}$ B) -9 C) $\frac{1}{9}$ D) 9

Multiply using the FOIL method.

71) $(4x - 1)(4x + 5)$ 71) _____
A) $8x^2 + 4$ B) $16x^2 + 16x - 5$ C) $16x^2 + 24x - 5$ D) $16x^2 - 5$

72) $(b - 8)(b + 3)$ 72) _____
A) $b^2 - 5b - 24$ B) $b^2 + 5b + 24$ C) $2b - 24$ D) $2b^2 + 24$

Multiply.

73) $(y - 4)^2$ 73) _____
A) $16y^2 - 8y + 16$ B) $y^2 + 16$ C) $y + 16$ D) $y^2 - 8y + 16$

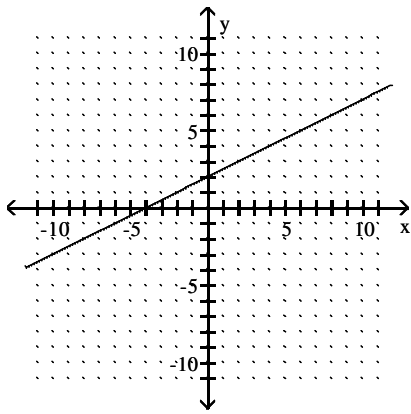
74) $(5p + 6)(5p - 6)$ 74) _____
A) $p^2 - 36$ B) $25p^2 + 60p - 36$
C) $25p^2 - 36$ D) $25p^2 - 60p - 36$

- 75) $(3a - 4)^2$ 75) _____
 A) $9a^2 + 16$ B) $9a^2 - 24a + 16$ C) $3a^2 - 24a + 16$ D) $3a^2 + 16$
- 76) $(x + 7)^2$ 76) _____
 A) $x^2 + 49$ B) $x^2 + 14x + 49$ C) $x + 49$ D) $49x^2 + 14x + 49$
- 77) $(a - 9)(a + 9)$ 77) _____
 A) $a^2 + 18a - 81$ B) $a^2 - 18a - 81$ C) $a^2 - 81$ D) $a^2 - 18$

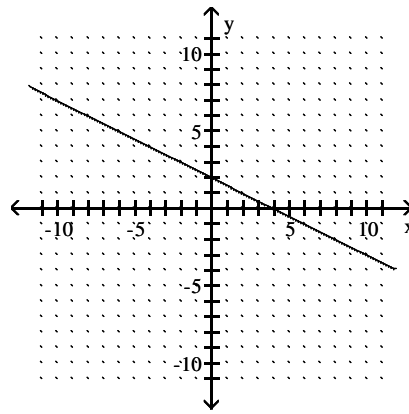
Use the slope-intercept form to graph the equation.

- 78) $y = -\frac{1}{2}x + 2$ 78) _____

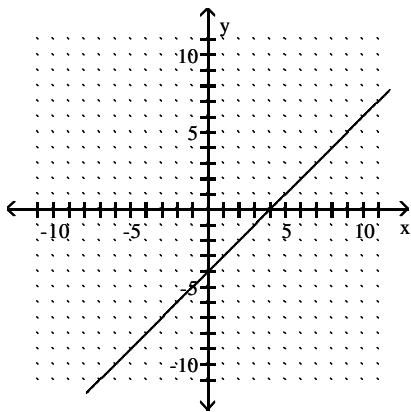
A)



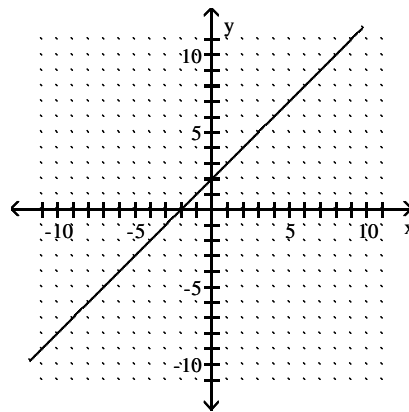
B)



C)



D)



Find an equation of the line described. Write the equation in slope-intercept form if possible.

- 79) Slope $-\frac{8}{9}$, through $(4, 2)$ 79) _____
- A) $y = -\frac{8}{9}x - \frac{50}{9}$ B) $y = -\frac{8}{9}x + \frac{50}{9}$ C) $y = \frac{8}{9}x - \frac{50}{9}$ D) $y = -\frac{9}{8}x - \frac{25}{4}$

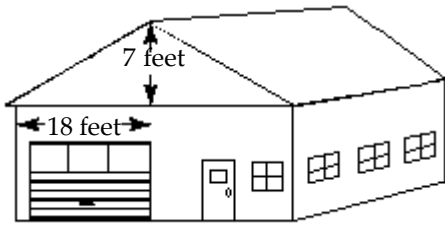
Find an equation of the line through the pair of points. Write the equation in the form $Ax + By = C$.

- 80) $(9, -8)$ and $(0, 3)$ 80) _____
- A) $11x + 9y = 27$ B) $17x - 3y = -9$ C) $-11x + 9y = 27$ D) $-17x + 3y = -9$

Solve.

81) The pitch of a roof is its slope. Interpret the pitch of the roof shown.

81) _____



- A) For each horizontal distance of 7 feet, the roof height increases by 18 feet.
- B) For each horizontal distance of 7 feet, the roof height decreases by 18 feet.
- C) For each horizontal distance of 18 feet, the roof height increases by 7 feet.
- D) For each horizontal distance of 18 feet, the roof height decreases by 7 feet.

Write an equation of the line with the given slope, m , and y -intercept $(0, b)$.

82) $m = \frac{1}{2}, b = 0$

82) _____

A) $x = \frac{1}{2}$

B) $y = 0$

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

D) $y = \frac{1}{2}x$

83) $m = -4, b = \frac{1}{2}$

83) _____

A) $y = -\frac{1}{2}x - 4$

B) $y = 4x + \frac{1}{2}$

C) $y = \frac{1}{2}x + 4$

D) $y = -4x + \frac{1}{2}$

Solve. Assume the exercise describes a linear relationship.

84) A gas station sells 4820 gallons of regular unleaded gasoline in a day when they charge \$1.35 per gallon, whereas they sell 3885 gallons on a day that they charge \$1.40 per gallon. Find a linear equation that relates gallons sold to price. Use this equation to predict the number of gallons sold at a price of \$1.22 per gallon.

84) _____

A) 7260 gal

B) 7247.7 gal

C) 7255.1 gal

D) 7251 gal

85) An investment is worth \$2401 in 1994. By 1997 it has grown to \$3520. Let y be the value of the investment in the year x , where $x = 0$ represents 1994. Write a linear equation that models the value of the investment in the year x .

85) _____

A) $y = \frac{1}{373}x + 2401$

B) $y = 373x + 2401$

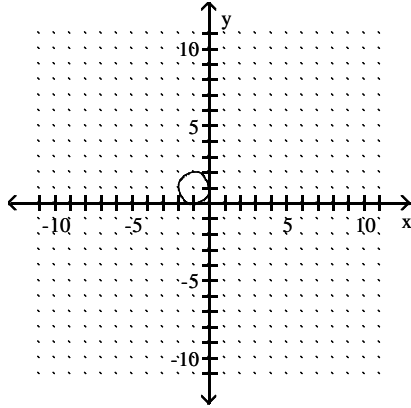
C) $y = -373x + 2401$

D) $y = -373x + 4639$

Determine whether the graph is the graph of a function.

86)

86) _____



A) yes

B) no

Evaluate the function.

87) Find $f(5)$ when $f(x) = 3x^3$

87) _____

A) 375

B) 75

C) 125

D) 45

Determine whether the ordered pair is a solution of the system of linear equations.

88) $(6, 7)$;

88) _____

$$\begin{cases} 3x = 25 - y \\ x + 3y = 27 \end{cases}$$

A) Yes

B) No

89) $(2, 5)$;

89) _____

$$\begin{cases} x + y = 3 \\ x - y = -7 \end{cases}$$

A) Yes

B) No

Solve the system of equations by either the addition method or the substitution method.

90)
$$\begin{cases} x = 7y + 10 \\ 3x - 8y = 4 \end{cases}$$

90) _____

A) $(-5, -1)$

B) $(4, -1)$

C) no solution

D) $(-4, -2)$

Without graphing, decide:

(a) Are the graphs of the equations identical lines, parallel lines, or lines intersecting at a single point?

(b) How many solutions does the system have?

91)
$$\begin{cases} 3x - y = 8 \\ x + 4y = 20 \end{cases}$$

91) _____

A) parallel lines; no solution

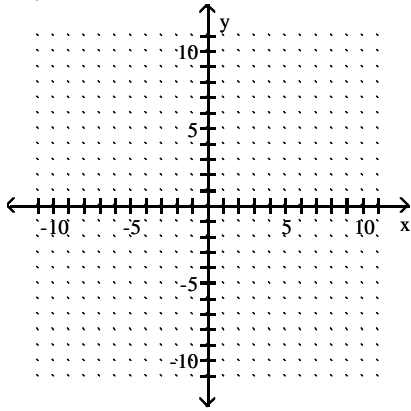
B) identical lines; infinite number of solutions

C) lines intersecting at a single point; one solution

Solve the system of equations by graphing.

$$92) \begin{cases} 2x + y = 2 \\ 3x + y = 1 \end{cases}$$

92) _____



A) (-1, 4)

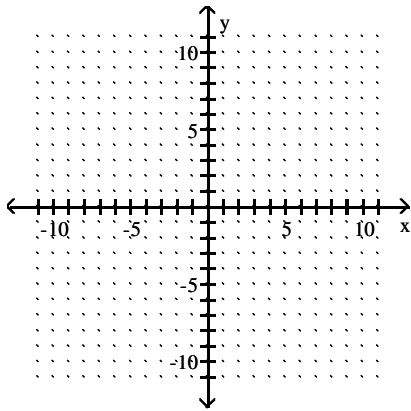
B) (4, -1)

C) no solution

D) (1, -4)

$$93) \begin{cases} x + y = 5 \\ x - y = 3 \end{cases}$$

93) _____



A) (4, 1)

B) (4, -1)

C) no solution

D) (1, 4)

Without graphing, decide:

(a) Are the graphs of the equations identical lines, parallel lines, or lines intersecting at a single point?

(b) How many solutions does the system have?

$$94) \begin{cases} x = -y \\ y + x = -4 \end{cases}$$

94) _____

A) lines intersecting at a single point; one solution

B) parallel lines; no solution

C) identical lines; infinite number of solutions

Solve the system of equations by the substitution method.

$$95) \begin{cases} -3x - 2y = -126 \\ x = 4y \end{cases}$$

95) _____

A) (9, 36)

B) no solution

C) (36, 9)

D) infinite number of solutions

96) $\begin{cases} \frac{1}{7}x - 2y = 1 \\ x - 14y = 7 \end{cases}$ 96) _____

A) infinite number of solutions B) no solution
 C) (1, -7) D) (7, -1)

Write the number in scientific notation.

97) 44,000,000 97) _____

A) 4.4×10^6 B) 4.4×10^{-6} C) 4.4×10^{-7} D) 4.4×10^7

98) 0.000902 98) _____

A) 9.02×10^{-3} B) 9.02×10^{-4} C) 9.02×10^{-5} D) 9.02×10^4

99) 0.000008739 99) _____

A) 8.739×10^{-6} B) 8.739×10^{-5} C) 8.739×10^6 D) 8.739×10^{-7}

100) 71,000 100) _____

A) 7.1×10^{-4} B) 7.1×10^{-5} C) 7.1×10^5 D) 7.1×10^4

Answer Key

Testname: 12B FINAL EXAM PRACTICE

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

Answer Key

Testname: 12B FINAL EXAM PRACTICE

- 51) D
- 52) A
- 53) C
- 54) C
- 55) A
- 56) D
- 57) A
- 58) C
- 59) B
- 60) C
- 61) A
- 62) A
- 63) C
- 64) A
- 65) A
- 66) A
- 67) D
- 68) C
- 69) A
- 70) C
- 71) B
- 72) A
- 73) D
- 74) C
- 75) B
- 76) B
- 77) C
- 78) B
- 79) B
- 80) A
- 81) C
- 82) D
- 83) D
- 84) D
- 85) B
- 86) B
- 87) A
- 88) A
- 89) B
- 90) D
- 91) C
- 92) A
- 93) A
- 94) B
- 95) C
- 96) A
- 97) D
- 98) B
- 99) A
- 100) D