

Name _____

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

Write the following as multiplication.

- 1) g^6 1) _____
 A) $g + 6$ B) $g + g + g + g + g + g$
 C) $\frac{g}{6}$ D) $g \cdot g \cdot g \cdot g \cdot g \cdot g$

Write the following using exponents.

- 2) $9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 \cdot 9 \cdot y \cdot y \cdot y$ 2) _____
 A) $(9y)^6$ B) $96y^3$ C) $54y^3$ D) $(9y)^9$

Simplify by using the order of operations.

- 3) $39 \div 13 \cdot 3 - 1 + 11$ 3) _____
 A) -11 B) -3 C) 11 D) 19

Simplify.

- 4) $\frac{7 \cdot (4 - 2) + 7 \cdot 7}{7 \cdot (8 - 1)}$ 4) _____
 A) 2 B) $\frac{9}{7}$ C) $\frac{15}{11}$ D) $\frac{63}{55}$

Solve the problem by finding and evaluating an appropriate expression.

- 5) An automobile lease company offers a plan where the customer pays \$1000 down and \$599 per month for 3 years. Find the total cost of leasing the car. 5) _____
 A) \$1602 B) \$2797 C) \$22,564 D) \$57,564

Insert $<$, $>$, or $=$ between the pair of numbers to make the statement true.

- 6) $-(-33)$ $-|33|$ 6) _____
 A) $<$ B) $=$ C) $>$
- 7) -6 -3 7) _____
 A) $>$ B) $=$ C) $<$

Add.

- 8) $4 + (-10)$ 8) _____
 A) 14 B) -14 C) 6 D) -6
- 9) $4.6 + (-8.8) + (-3.4)$ 9) _____
 A) -7.6 B) 10 C) -0.8 D) 16.8

Write an equivalent numerical expression and evaluate.

- 10) -6 increased by 25 10) _____
 A) $-6 + (-25); -31$ B) $6 + 25; 31$ C) $25 + (-6); 31$ D) $-6 + 25; 19$

Evaluate.

11) $-2 - 8$ 11) _____
A) -10 B) 10 C) -6 D) 6

12) $-13 - (-3)$ 12) _____
A) 10 B) 16 C) -10 D) -16

Combine like terms.

13) $-3b + 9b$ 13) _____
A) $-6b$ B) $6b^2$ C) $-12b$ D) $6b$

14) $24x - 6y + 13 - 2x - 2 - 3y$ 14) _____
A) $22x - 9y + 11$ B) $-22x - 3y + 11$ C) $-22x - 9y + 11$ D) $22x - 3y + 11$

Write as a subtraction problem and evaluate.

15) 14 less than -5 15) _____
A) $-5 - 14; 19$ B) $-5 - 14; -19$ C) $14 - 5; 9$ D) $14 - (-5); 19$

Identify the polynomial as a monomial, binomial, trinomial, or none of these.

16) $8y^4 - 6y^3 + 8$ 16) _____
A) Binomial B) None of these C) Monomial D) Trinomial

Write the polynomial in descending order.

17) $-8x + 3 + 6x^2$ 17) _____
A) $-6x^2 - 8x + 3$ B) $6x^2 - 8x + 3$ C) $-8x^2 - 6x + 3$ D) $6x^2 - 11x$

Evaluate the polynomial.

18) $-6x^3 + 3x^2 - 9$ for $x = 2$ 18) _____
A) -51 B) -55 C) -45 D) -57

Add.

19) $(8n^6 + 9n^4 + 8) + (8n^6 - 2n^4 + 5)$ 19) _____
A) $16 + 7n^6 + 13n^4$ B) $16n^6 + 6n^4 + 14$
C) $36n^{10}$ D) $16n^6 + 7n^4 + 13$

Subtract.

20) $(5n^6 + 20n^5 - 14) - (3n^6 - 8n^5 - 19)$ 20) _____
A) $2n^6 + 28n^5 + 5$ B) $35n^{11}$
C) $2n^6 + 28n^5 - 33$ D) $2n^6 + 23n^5 - 33$

Find the product.

21) $(-3)(-3)(-8)$ 21) _____
A) -72 B) 28 C) 72 D) -82

22) -9^2 22) _____
A) -18 B) -81 C) 18 D) 81

Simplify using the laws of exponents.

23) $5^9 \cdot 5^3$

A) 5^{12}

B) 25^{12}

C) 5^{27}

D) 25^{27}

23) _____

24) $(-6x^4)(-2x^5)$

A) $-8x^9$

B) $12x^9$

C) $-8x^{20}$

D) $-12x^{20}$

24) _____

25) $(-5a^2)^6$

A) $(-5)^{12}a^{12}$

B) $(-5)^{12}a^2$

C) $(-5)^6a^{12}$

D) $-30a^2$

25) _____

Simplify.

26) $(3x)(4x) + (-7x)(-6x)$

A) $-54x$

B) $-54x^2$

C) $54x$

D) $54x^2$

26) _____

Find the product.

27) $-2(6x + 3y)$

A) $-2x - 6y$

B) $-12x - 6y$

C) $6x - 6y$

D) $-12x + 3y$

27) _____

Simplify.

28) $3(2x - 4) - 7(4x - 8)$

A) $-22x + 44$

B) $-22x - 4$

C) $22x - 44$

D) $-22x - 44$

28) _____

Multiply.

29) $(-4x - 10)(x - 9)$

A) $-4x^2 + 26x + 90$

B) $-4x^2 + 24x + 90$

C) $-4x^2 + 90x + 26$

D) $-4x^2 + 26x + 26$

29) _____

Solve the problem.

30) Determine a polynomial that represents the area of a rectangle having length $L = x + 6$ and width $W = x - 3$.

A) $x^2 + 3x + 18$

B) $4x + 6$

C) $x^2 + 3x - 18$

D) $x^2 - 3x - 18$

30) _____

Find the square.

31) $(w - 9)^2$

A) $w + 81$

B) $81w^2 - 18w + 81$

C) $w^2 + 81$

D) $w^2 - 18w + 81$

31) _____

Find the quotient.

32) $\frac{0}{-59}$

A) 59

B) undefined

C) 1

D) 0

32) _____

Write a numerical expression for the phrase and simplify it.

33) The quotient of 14 and -2 decreased by -9

A) $\frac{14}{-2} - (-9); 2$

B) $\frac{14}{2} - 9; -2$

C) $\frac{14}{2} - (-9); 16$

D) $\frac{14}{-2} - 9; -16$

33) _____

Evaluate.

34) $12 + 6^2 - 12(-10)$ 34) _____
A) 456 B) -72 C) 168 D) 408

35) $|8(2 - 6)| - |4 \cdot 2^2 - 26|$ 35) _____
A) 42 B) 22 C) -22 D) 120

Simplify. Leave answer in exponential form with positive exponents only. Assume that all variables represent nonzero quantities.

36) $\frac{5^{12}}{5^{-4}}$ 36) _____
A) $\frac{1}{5^{16}}$ B) 5^{16} C) 5^{-10} D) 5^8

37) 4^{-3} 37) _____
A) $\frac{1}{12}$ B) -64 C) 64 D) $\frac{1}{64}$

Simplify. Assume that all variables represent nonzero quantities.

38) $(6x)^0$ 38) _____
A) 0 B) 1 C) 6 D) $6x$

Write without exponents and evaluate.

39) $\left(\frac{1}{5}\right)^{-4}$ 39) _____
A) $\frac{1}{625}$ B) -625 C) 625 D) $-\frac{1}{5}$

Write with positive exponents only.

40) $\frac{(x-5)^3}{x^3x^2}$ 40) _____
A) $\frac{1}{x^7}$ B) $\frac{1}{x^{20}}$ C) x^{20} D) x^7

Find the quotient of the monomials.

41) $\frac{28m^5p^2}{2m^9p}$ 41) _____
A) $14m^4p^2$ B) $\frac{14m^4}{p}$ C) $\frac{14p}{m^4}$ D) $14mp$

Find the quotient.

42) $\frac{(80x^6 - 24x^4 + 16x^2)}{(-8x^2)}$ 42) _____
A) $-10x^4 + 3x^2 - 2$ B) $80x^4 - 24x^2 + 16$
C) $-10x^6 + 3x^4 - 2x^2$ D) $-10x^4 - 24x^2 + 16x^2$

Write the following in standard notation.

- 43) 2.529×10^7 43) _____
A) 25,290,000 B) 177.03 C) 252,900,000 D) 2,529,000

Write the following in scientific notation.

- 44) .000243 44) _____
A) 2.43×10^{-4} B) 2.43×10^{-5} C) 2.43×10^{-3} D) 2.43×10^4

Change the improper fraction into a mixed number.

- 45) $\frac{47}{5}$ 45) _____
A) $9\frac{2}{7}$ B) $8\frac{2}{5}$ C) $9\frac{2}{5}$ D) $10\frac{2}{5}$

Change the mixed number into an improper fraction.

- 46) $5\frac{2}{9}$ 46) _____
A) $\frac{47}{2}$ B) $\frac{47}{9}$ C) $\frac{45}{2}$ D) $\frac{45}{9}$

Write the fraction in lowest terms.

- 47) $\frac{126}{170}$ 47) _____
A) $\frac{127}{171}$ B) $\frac{63}{85}$ C) $\frac{85}{63}$ D) $\frac{169}{125}$

Find the product. Reduce answer to lowest terms.

- 48) $-\frac{36}{35} \cdot \frac{7}{9}$ 48) _____
A) $-\frac{4}{5}$ B) $\frac{4}{5}$ C) $\frac{5}{9}$ D) $-1\frac{1}{35}$

Find the product. Leave answer reduced to lowest terms, and assume that all variables have nonzero values.

- 49) $\frac{m^5x}{n^5y^5} \cdot \frac{n^9y^3}{m^4x^5}$ 49) _____
A) $\frac{n^4}{x^4y^2}$ B) $\frac{mn^4}{x^4y^2}$ C) $\frac{x^4y^2}{mn^4}$ D) $\frac{m+n^4}{x^4+y^2}$

Find the quotient of the fractions. Leave the answer reduced to lowest terms.

- 50) $4\frac{3}{5} \div \left(-2\frac{3}{4}\right)$ 50) _____
A) $-\frac{55}{92}$ B) $-1\frac{37}{55}$ C) $1\frac{37}{55}$ D) $-23\frac{13}{20}$

51) $\frac{4d^6}{k^5} \div \frac{2d^8}{k^8}$ 51) _____

A) $\frac{2k^3}{d^2}$ B) $\frac{k^5}{d^6}$ C) $\frac{8d^8}{k^8}$ D) $\frac{k^3}{2d^2}$

Add/Subtract the rational expression and reduce to lowest terms.

52) $\frac{8}{7x^2} - \frac{6}{7x^2}$ 52) _____

A) $\frac{7}{2x^2}$ B) 2 C) $\frac{2}{14x^4}$ D) $\frac{2}{7x^2}$

Write each fraction as an equivalent fraction with the LCD of the two fractions as the denominator.

53) $\frac{1}{5}$ and $\frac{1}{7}$ 53) _____

A) $\frac{7}{35}; \frac{5}{35}$ B) $\frac{7}{5}; \frac{5}{5}$ C) $\frac{5}{35}; \frac{7}{35}$ D) $\frac{1}{35}; \frac{1}{35}$

Perform the indicated operation and reduce to lowest terms.

54) $\frac{7}{8} - \frac{1}{5}$ 54) _____

A) $\frac{27}{40}$ B) $\frac{27}{8}$ C) $\frac{3}{20}$ D) $\frac{3}{4}$

Solve the equation.

55) $\frac{x}{3} - \frac{x}{8} = 2$ 55) _____

A) $x = \frac{48}{5}$ B) $x = 16$ C) $x = 6$ D) $x = 24$

Solve.

56) $z + 3 = 5$ 56) _____

A) -2 B) 2 C) -8 D) 8

57) $-13.8 - z = 13.1$ 57) _____

A) -26.9 B) -0.7 C) 0.7 D) 26.9

58) $9x - 2(4x + 2) = -6$ 58) _____

A) -10 B) -2 C) 2 D) 10

Solve the equation using the multiplication principle.

59) $2 = \frac{a}{-8}$ 59) _____

A) -1 B) -7 C) -16 D) -6

60) $-8a = 32$ 60) _____

A) 1 B) -40 C) -4 D) 40

Solve the problem.

61) Mr. and Mrs. Gutierrez borrow \$6000 to buy a new car. The loan is to be paid off in 30 equal monthly payments. How much is each payment?

- A) \$5970 B) \$200 C) \$20 D) \$6030

61) _____

Solve.

62) $31 = 4x - 9$

- A) $x = 36$ B) $x = 16$ C) $x = 10$ D) $x = 40$

62) _____

63) $-10m + 4 = 3 + 7m + 10m$

- A) $y = -\frac{3}{17}$ B) $y = 27$ C) $y = \frac{1}{27}$ D) $y = -27$

63) _____

64) $-6x + 6(3x - 4) = -8 - 4x$

- A) $x = 1$ B) $x = -4$ C) $x = -2$ D) $x = -1$

64) _____

Solve the formula for the indicated variable with the given information.

65) $d = rt$ for d , with $r = 60$ miles per hour and $t = 5$ hours

- A) $d = 0.8$ miles B) $d = 65$ miles C) $d = 300$ miles D) $d = 12$ miles

65) _____

Solve the formula for the indicated variable.

66) $V = \frac{1}{3}Bh$ for h

- A) $h = \frac{V}{3B}$ B) $h = \frac{3B}{V}$ C) $h = \frac{B}{3V}$ D) $h = \frac{3V}{B}$

66) _____

Solve for y .

67) $3x + y = 7$

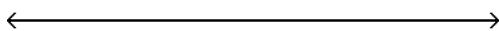
- A) $y = \frac{7 - x}{3}$ B) $y = 7 - 3x$ C) $y = 3x - 7$ D) $y = 3(x - 7)$

67) _____

Solve using the addition principle. Then graph.

68) $-6n + 4 > -7n + 3$

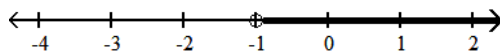
68) _____



A) $n \geq 7$



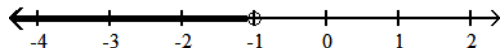
B) $n > -1$



C) $n \leq 7$



D) $n < -1$



Solve by using the addition and multiplication properties of inequalities.

69) $-4s + 4 \geq -24$

A) $s \geq 3$

B) $s \leq 5$

C) $s \geq 7$

D) $s \leq 7$

69) _____

Solve.

70) If three times the smaller of two consecutive integers is added to four times the larger, the result is 137. Find the smaller integer.

A) 57

B) 18

C) 20

D) 19

70) _____

Solve the problem.

71) From a point on a river, two boats are driven in opposite directions, one at 10 miles per hour and the other at 6 miles per hour. In how many hours will they be 32 miles apart?

A) 2 hr

B) 4 hr

C) 5 hr

D) 8 hr

71) _____

Solve.

72) A pay phone only accepts quarters and dimes. At the end of the day, the attendant collected 74 coins whose total value was \$11.60. How many coins of each type were there?

A) 26 quarters, 44 dimes

B) Use a cell phone.

C) 29 quarters, 45 dimes

D) 28 quarters and 46 dimes

E) 46 quarters, 28 dimes

72) _____

73) A company gave a sign on bonus to its new employee. She invested part of this money in bonds at 5% interest annually. Also she invested \$2200 more than this amount in certificates of deposit at 12% annual interest. How much money did she invest if she received \$2984 per year in interest from the two investments?

A) \$34,200

B) \$32,000

C) \$18,200

D) \$29,800

73) _____

74) An herbal tea mixture is made by mixing tea leaves costing \$6.76 a pound with another tea leaves costing \$7.51 per pound. How many pounds of each type of tea leaves are needed to make 3 pounds of herbal tea mixture costing 7.21 per pound?

A) 2.2, 1.8

B) 2.2, 2.8

C) 1.2, 2.8

D) 1.2, 1.8

74) _____

75) How many milliliters of a solution that is 42% alcohol must be added to 26 milliliters of a 9% alcohol solution to make a 22% alcohol solution?

A) 40.3 mL

B) 11.7 mL

C) 16.9 mL

D) 5.2 mL

75) _____

76) A rectangular Persian carpet has a perimeter of 176 inches. The length of the carpet is 24 inches more than the width. What are the dimensions of the carpet?

A) 76 in, 100 in

B) 56 in, 80 in

C) 64 in, 88 in

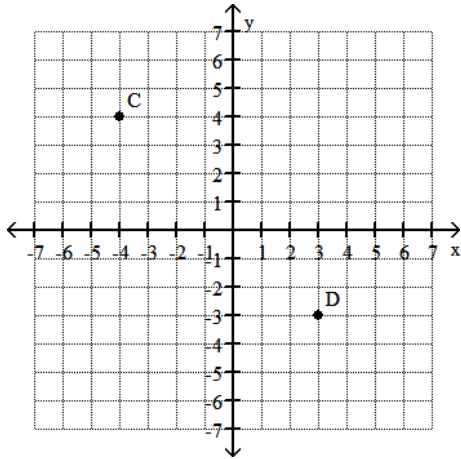
D) 32 in, 56 in

76) _____

Find the coordinates of the labeled points.

77)

77) _____



- A) C(-4, 4); D(3, -3)
- C) C(4, 8); D(-3, 3)

- B) C(-4, 4); D(-3, 3)
- D) C(-4, -3); D(4, -3)

Find three solutions for the equation.

78) $y = -9x$

78) _____

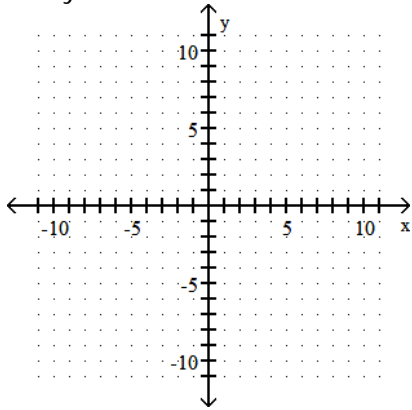
- A) (-7, -9), (-6, -9), (-5, -9)
- C) (-7, 0), (-7, 54), (-7, 45)

- B) (-7, 0), (-6, -54), (-5, 54)
- D) (-7, 63), (-6, 54), (-5, 45)

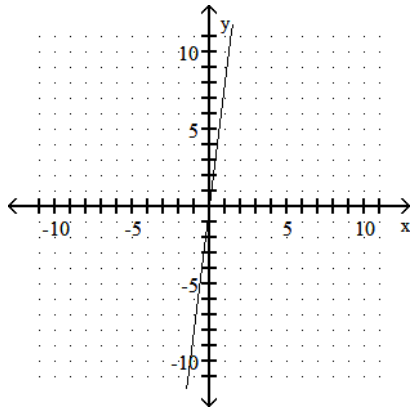
Graph the linear equation.

79) $8x + y = 0$

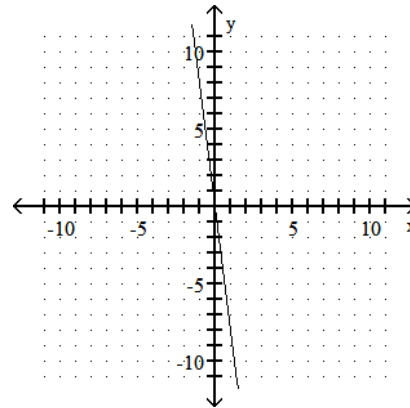
79) _____



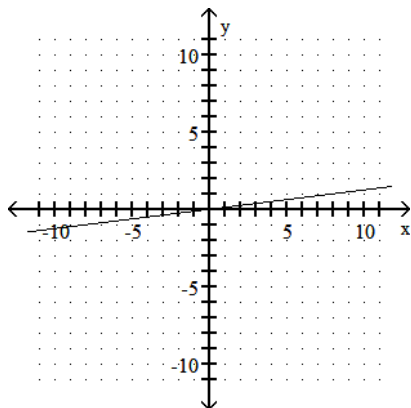
A)



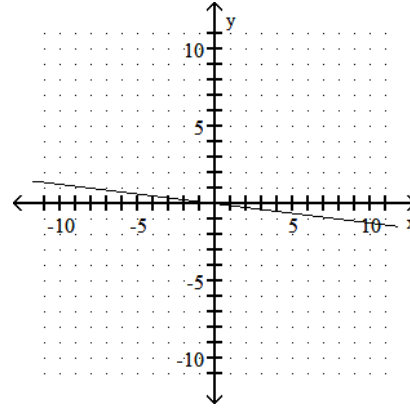
B)



C)



D)



Find the slope of the line.

80) $y = 3$

80) _____

A) -3

B) 0

C) 3

D) Undefined

81) $-5y = -2x - 24$

81) _____

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

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

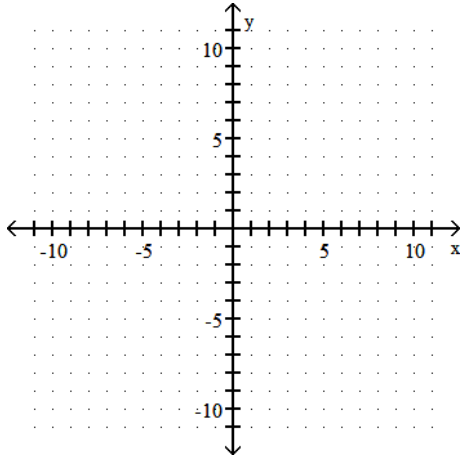
C) $-\frac{5}{2}$

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

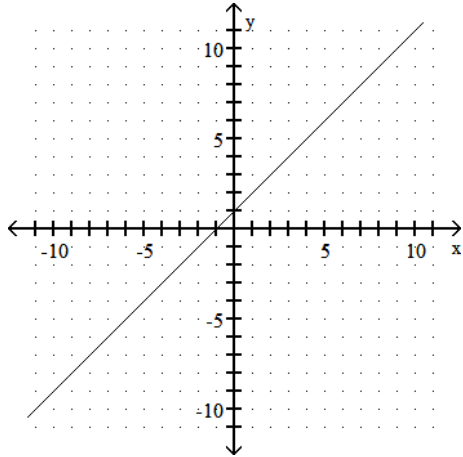
Graph using the intercept method.

82) $x + y = 1$

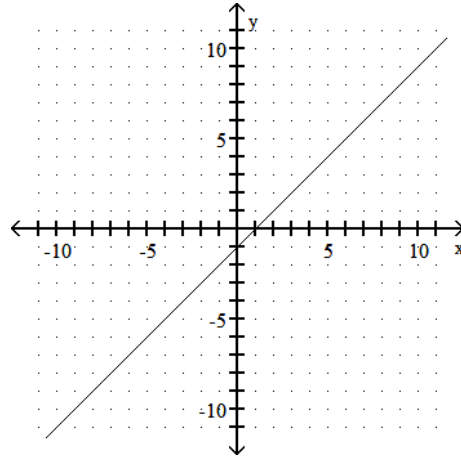
82) _____



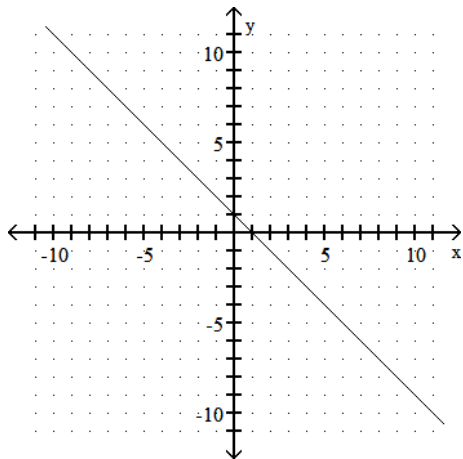
A)



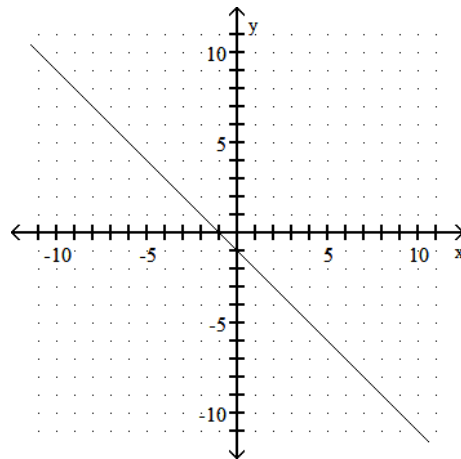
B)



C)



D)



Find the slope of the line through the pair of points.

83) (3, -7) and (-4, -5)

A) $\frac{7}{2}$

B) $-\frac{7}{2}$

C) $\frac{2}{7}$

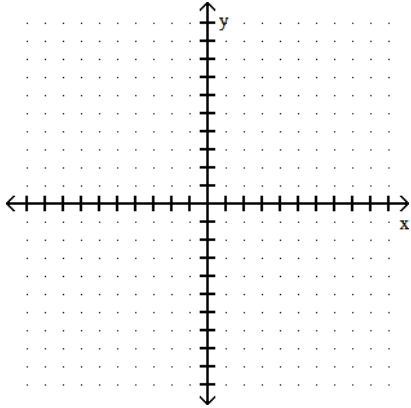
D) $-\frac{2}{7}$

83) _____

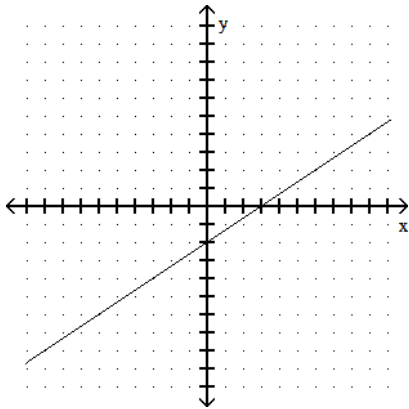
Draw the graph of the line that contains the specified point and has the specified slope, m.

84) (0, -2), $m = \frac{2}{3}$

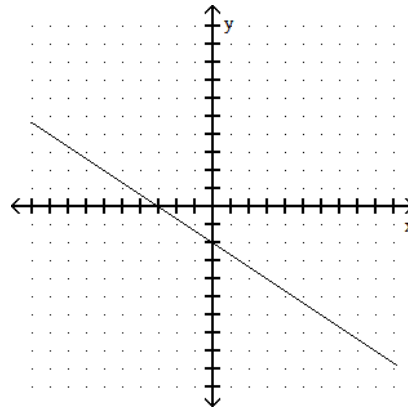
84) _____



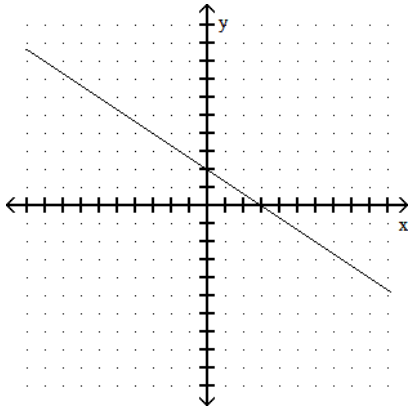
A)



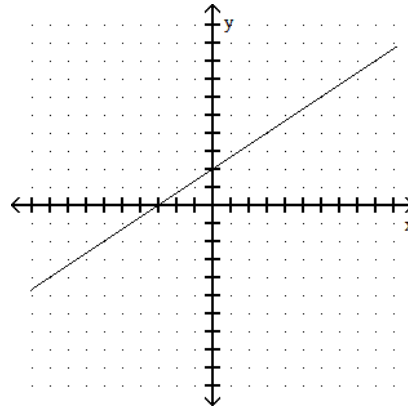
B)



C)



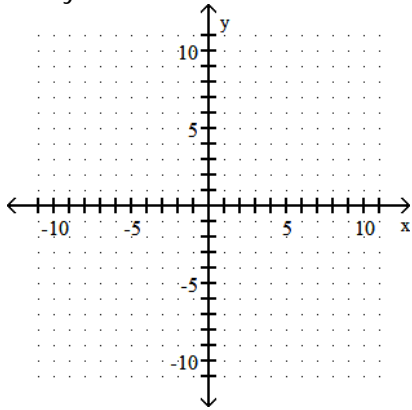
D)



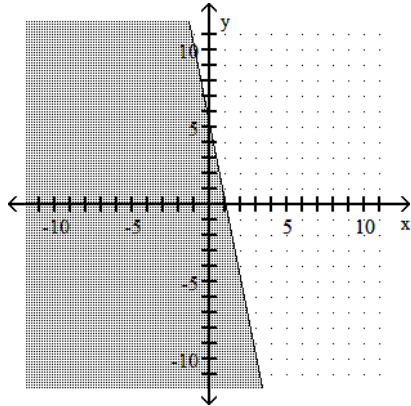
Graph the linear inequality.

85) $5x + y \leq 5$

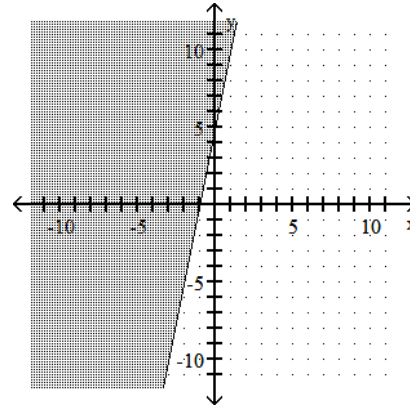
85) _____



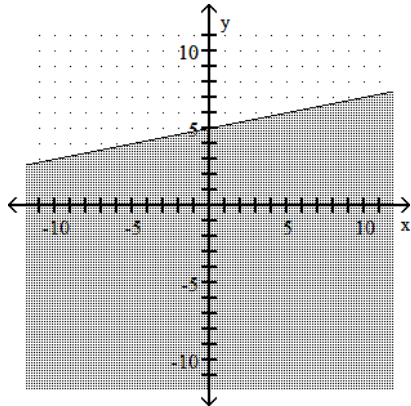
A)



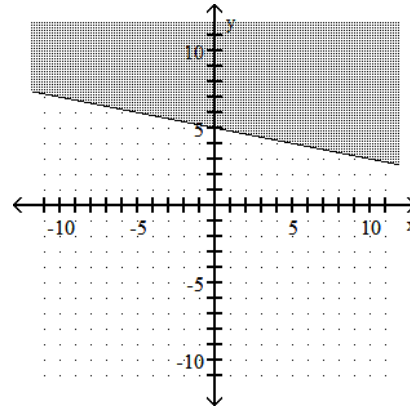
B)



C)



D)



Solve the proportion.

86) $\frac{x}{26} = \frac{9}{13}$

86) _____

A) $x = \frac{338}{9}$

B) $x = \frac{9}{2}$

C) $x = 36$

D) $x = 18$

87) $\frac{3}{7} = \frac{9}{x+7}$

87) _____

A) $x = 28$

B) $x = \frac{56}{3}$

C) $x = \frac{3}{28}$

D) $x = 14$

Solve.

- 88) The field has an area of 8 acres, and Joan can mow it in 4 hours. How long would it take her to mow a field that has an area of 5.6 acres? 88) _____
A) 2.8 hr B) 5.8 hr C) 4.8 hr D) .7 hr

Convert the percent to a fraction.

- 89) $42\frac{6}{7}\%$ 89) _____
A) $\frac{3}{14}$ B) $\frac{3}{7}$ C) $\frac{6}{7}$ D) $\frac{30}{7}$

Convert the percent to a decimal.

- 90) 83.6% 90) _____
A) 8.36 B) .726 C) .836 D) .0836

Convert the decimal to percent notation.

- 91) .00722 91) _____
A) .0722% B) .000722% C) .722% D) .361%

Convert the fraction to percent notation.

- 92) $\frac{1}{6}$ 92) _____
A) $16\frac{2}{3}\%$ B) $3\frac{1}{3}\%$ C) $1\frac{2}{3}\%$ D) $8\frac{1}{3}\%$

Solve.

- 93) 50% of 600 is what number? 93) _____
A) 3 B) 30 C) 3000 D) 300
- 94) What number is 90% of 263? 94) _____
A) 23.67 B) 2367 C) 23,670 D) 236.7
- 95) 23.18 is what percent of 38? 95) _____
A) .61% B) 6.1% C) 610% D) 61%

Solve the problem.

- 96) A hardware store had monthly sales of \$90,800 and spent 6% of it on promotions. How much was spent on promotions? 96) _____
A) \$151,333 B) \$1,513,333 C) \$54,480 D) \$5448
- 97) If the taxes on a kitchen table that sells for \$170 are \$11.90, find the sales tax rate. 97) _____
A) 7% B) 8% C) .7% D) 9%
- 98) The sales tax on a freezer is \$38.53 and the sales tax rate is 7%. Find the total cost. Round your answer to the nearest cent. 98) _____
A) \$520.15 B) \$680.70 C) \$588.96 D) \$93.57
- 99) If an item has an original price of \$271 and the discount rate is 25%, find the discount. 99) _____
A) \$65.04 B) \$70.46 C) \$33.88 D) \$67.75

100) A salesman earns a straight commission of 26%. One week he had sales of \$1980. Find his gross pay for the week.

A) \$51,480.00

B) \$51.48

C) \$514.80

D) \$5148.00

100) _____