Name_____

review for math TSI 182 practice 05101704041700aafm041024350m

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

Simplify.

1) $\dfrac{193 + 7}{3^2 - 4}$

    A) 40   B) 100   C) 60   D) 38

1) _____

Answer: A
Objective: (1.7) Use Order of Operations

Evaluate the expression for the given replacement values.

2) $4x + 5y$ for $x = 8$ and $y = 6$

    A) 62   B) 37   C) 34   D) 9

2) _____

Answer: A
Objective: (1.8) Evaluate Algebraic Expressions Given Replacement Values

3) $8x^2 + 5x$ for $x = 4$

    A) 148   B) 108   C) 84   D) 52

3) _____

Answer: A
Objective: (1.8) Evaluate Algebraic Expressions Given Replacement Values

4) $\dfrac{20x - 25}{y}$ for $x = 7, y = 5$

    A) 23   B) 3   C) 135   D) 8

4) _____

Answer: A
Objective: (1.8) Evaluate Algebraic Expressions Given Replacement Values

Solve the equation.

5) $f + 1 = -2$

    A) -3   B) 3   C) -1   D) 1

5) _____

Answer: A
Objective: (2.6) Use the Addition Property of Equality to Solve Equations

6) $-2x = -12$

    A) 6   B) 10   C) -10   D) -6

6) _____

Answer: A
Objective: (2.6) Use the Multiplication Property of Equality to Solve Equations

7) $5x + 4 = 49$

  A) 9   B) 40   C) 44   D) 5

Answer: A
Objective: (3.2) Use Both Properties to Solve Equations

8) $9n - 4 = 59$

  A) 7   B) 54   C) 58   D) 10

Answer: A
Objective: (3.2) Use Both Properties to Solve Equations

9) $2(5x - 2) = 8x$

  A) 2   B) -2   C) -1   D) 1

Answer: A
Objective: (3.2) Use Both Properties to Solve Equations

10) $5(y - 4) = 7y - 20$

  A) 0   B) -20   C) 20   D) -40

Answer: A
Objective: (3.2) Use Both Properties to Solve Equations

11) $-3(x + 2) - 18 = -8 - 4$

  A) -4   B) 4   C) 2   D) -2

Answer: A
Objective: (3.2) Use Both Properties to Solve Equations

12) $5x - 6 = 2x - 30$

  A) -8   B) 8   C) -10   D) 10

Answer: A
Objective: (3.3) Solve Linear Equations Using the Addition and Multiplication Properties

Add or subtract as indicated. Write the answer in simplest form.

13) $\dfrac{4}{15} - \dfrac{1}{10}$

  A) $\dfrac{1}{6}$ B) $\dfrac{1}{10}$ C) $\dfrac{1}{5}$ D) $\dfrac{25}{150}$

Answer: A
Objective: (4.5) Add or Subtract Unlike Fractions

Solve.

14) $\dfrac{x}{5} = \dfrac{x}{6} + \dfrac{2}{5}$

  A) 12   B) $-\dfrac{2}{5}$ C) 0   D) $\dfrac{1}{12}$

Answer: A
Objective: (4.8) Solve Equations Containing Fractions

Solve the equation.

    15) $1.1x + 4.3 = 0.7x + 1.14$ 15) _____

        A) –7.9   B) –7.8   C) 0.127   D) –7.11

        Answer: A

Find the mean. If necessary, round to one decimal place.

    16) 17, 1, 16, 16, 7, 19, 3, 17   16) _____

        A) 12   B) 11   C) 34   D) 13.7

        Answer: A

Find the median. If necessary, round to one decimal place.

    17) 4, 6, 25, 23, 43, 47   17) _____

        A) 24   B) 23   C) 21.5   D) 25

        Answer: A

Solve the proportion.

    18) $\dfrac{4}{13} = \dfrac{x}{39}$ 18) _____

        A) 12   B) $1\dfrac{1}{3}$ C) $126\dfrac{3}{4}$ D) 16

        Answer: A

    19) $\dfrac{x + 8}{x} = \dfrac{4}{3}$ 19) _____

        A) 24   B) – 32   C) $\dfrac{24}{7}$ D) 8

        Answer: A

Translate to an equation and solve.

    20) 19 is 4% of what number?   20) _____

        A) 475   B) 4750   C) 47.5   D) 76

        Answer: A

Find the unknown length in the right triangle. If necessary, approximate the length to the nearest thousandth.

    21)   21) _____

25 cm

?
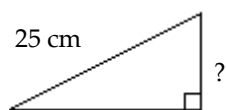
24 cm

        A) 7 cm   B) 1 cm   C) 9.322 cm   D) 3.678 cm

        Answer: A

Find the probability of the event.

22) If a single die is tossed once, find the probability of the following event.

A 2

   A) $\frac{1}{6}$ B) $\frac{1}{3}$ C) 2   D) 0

22) _____

Answer: A

Find the probability of the event if a single choice is made from a bag.

23) A bag contains 7 red marbles, 7 blue marbles, 6 yellow marbles, and 6 green marbles. What is the probability of choosing a red marble when one marble is drawn?

   A) $\frac{7}{26}$ B) $\frac{7}{19}$ C) $\frac{1}{4}$ D) $\frac{1}{26}$

23) _____

Answer: A

24) A bag contains 2 red marbles, 7 blue marbles, and 3 green marbles. What is the probability of choosing a blue marble when one marble is drawn?

   A) $\frac{7}{12}$ B) $\frac{1}{6}$ C) $\frac{1}{4}$ D) $\frac{7}{9}$

24) _____

Answer: A

25) A bag contains 8 red marbles, 2 blue marbles, and 1 green marble. What is the probability of choosing a marble that is not blue when one marble is drawn from the bag?

   A) $\frac{9}{11}$ B) $\frac{11}{9}$ C) $\frac{2}{11}$ D) 9

25) _____

Answer: A

26) A bag contains 7 red marbles, 2 blue marbles, and 1 green marble. What is the probability of choosing a marble that is not blue when one marble is drawn from the bag?

   A) $\frac{4}{5}$ B) $\frac{5}{4}$ C) $\frac{1}{5}$ D) 8

26) _____

Answer: A

27) A bag contains 7 red marbles, 8 blue marbles, 6 yellow marbles, and 4 green marbles. What is the probability of choosing a yellow or green marble when one marble is drawn?

   A) $\frac{2}{5}$ B) $\frac{1}{2}$ C) $\frac{6}{25}$ D) $\frac{4}{25}$

27) _____

Answer: A

28) A bag contains 17 balls numbered 1 through 17. What is the probability of selecting a ball that has   28) _____
an even number when one ball is drawn from the bag?

   A) $\dfrac{8}{17}$ B) $\dfrac{17}{8}$ C) $\dfrac{2}{17}$ D) 8

Answer: A
Objective: (7.5) Find the Probability of an Event

Solve.

29) A new drug is being tested that is supposed to lower cholesterol. This drug was given to 200   29) _____
people and the results are below.

Lower Cholesterol	Higher Cholesterol	Cholesterol not Changed
134	8	58

If a person is testing this drug, what is the probability that their cholesterol will be lower?

   A) $\dfrac{67}{100}$ B) $\dfrac{71}{100}$ C) $\dfrac{33}{100}$ D) $\dfrac{24}{25}$

Answer: A
Objective: (7.5) Find the Probability of an Event

30) The length of a rectangle is 148 in. and the width is 36 in. Find its perimeter.   30) _____
   A) 368 in.   B) 184 in.   C) 332 in.   D) 5328 in.

Answer: A
Objective: (8.2) Use Formulas to Find Perimeters

31) The sides of a triangle are 756 ft, 264 ft, and 883 ft. Find its perimeter.   31) _____
   A) 1903 ft   B) 3806 ft   C) 1639 ft   D) 2040 ft

Answer: A
Objective: (8.2) Use Formulas to Find Perimeters

Find the exact or approximate circumference of the circle, as indicated.

32) Find the exact circumference.   32) _____

   A) 30π mi   B) 60π mi   C) 900π mi   D) 15π mi
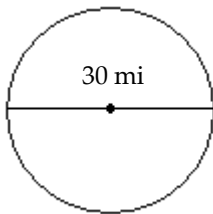
Answer: A
Objective: (8.2) Use Formulas to Find Circumferences

Find the area of the geometric figure.
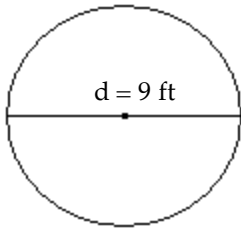
Use 3.14 for π.

  A) 63.585 sq ft   B) 254.34 sq ft   C) 127.17 sq ft   D) 56.52 sq ft

Answer: A

Objective: (8.3) Find the Area of Plane Regions

Solve the equation.

34) $6x - (3x - 1) = 2$ 34) _____

  A) $\dfrac{1}{3}$ B) $\dfrac{1}{9}$ C) $-\dfrac{1}{3}$ D) $-\dfrac{1}{9}$

Answer: A

Objective: (9.3) Apply the General Strategy for Solving a Linear Equation

35) $(y - 9) - (y + 4) = 6y$ 35) _____

  A) $-\dfrac{13}{6}$ B) $-\dfrac{1}{3}$ C) $-\dfrac{13}{9}$ D) $-\dfrac{13}{7}$

Answer: A

Objective: (9.3) Apply the General Strategy for Solving a Linear Equation

36) $3(2z - 3) = 5(z + 4)$ 36) _____

  A) 29   B) –11   C) 11   D) 14

Answer: A

Objective: (9.3) Apply the General Strategy for Solving a Linear Equation

37) $\dfrac{5}{6}x + \dfrac{4}{3} = \dfrac{2}{3}x$ 37) _____

  A) –8   B) 8   C) –12   D) 12

Answer: A

Objective: (9.3) Solve Equations Containing Fractions or Decimals

38) $9x + 5 - 9x - 5 = 6x - 6x - 3$ 38) _____

  A) 0   B) –288

  C) all real numbers   D) no solution

Answer: D

Objective: (9.3) Recognize Identities and Equations with No Solution

39) $2(x + 5) = (2x + 10)$

    A) 20   B) 0

    C) all real numbers   D) no solution

39) _____

Answer: C

Solve.

40) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 12 meters and 46 meters of fencing is required to completely enclose it. What is the width of the garden?

    A) 11 m   B) 552 m   C) 3.83 m   D) 22 m

40) _____

Answer: A

41) Ted drove to his grandparents' house for a holiday weekend. The total distance (one–way) was 312 miles and it took him 12 hours. How fast was Ted driving? (Round answer to the nearest whole number)

    A) 26 mph   B) 374 mph   C) 38 mph   D) 37 mph

41) _____

Answer: A

42) Use the formula $C = \dfrac{5}{9}(F - 32)$ to write 212° F as degrees Celsius.

    A) 100° C   B) 413.6° C   C) 135.6° C   D) 85.8° C

42) _____

Answer: A

Substitute the given values into the formula and solve for the unknown variable.

43) $d = rt$; $t = 4$, $d = 16$

    A) 4   B) 20   C) 0.3   D) 12

43) _____

Answer: A

44) $P = 2L + 2W$; $P = 28$, $W = 6$

    A) 8   B) 14   C) 11   D) 22

44) _____

Answer: A

45) $I = prt$; $I = 25.2$, $p = 140$, $r = 0.06$

    A) 3   B) 211.68   C) 0.3   D) 2.1168

45) _____

Answer: A

Solve the equation for the indicated variable.

46) $d = rt$ for r

    A) $r = \dfrac{d}{t}$ B) $r = dt$ C) $r = \dfrac{t}{d}$ D) $r = d - t$

46) _____

Answer: A

47) P = 2L + 2W   for L

A) $L = \dfrac{P - 2W}{2}$ B) L = P – W   C) $L = \dfrac{P - W}{2}$ D) L = P – 2W

47) _____

Answer: A

48) A = P + PRT   for R

A) $R = \dfrac{A - P}{PT}$ B) $R = \dfrac{P - A}{PT}$ C) $R = \dfrac{A}{T}$ D) $R = \dfrac{PT}{A - P}$

48) _____

Answer: A

49) A = P + PRT   for T

A) $T = \dfrac{A - P}{PR}$ B) $T = \dfrac{P - A}{PR}$ C) $T = \dfrac{A}{R}$ D) $T = \dfrac{PR}{A - P}$

49) _____

Answer: A

Solve the inequality.

50) x – 3 < –4

50) _____

A) (-∞, –1)

B) (–1, ∞)

C) (-∞, –1]

D) [–1, ∞)

Answer: A

51) −7x − 1 > −8x + 5

51) _____

A) (6, ∞)

B) (-∞, 4]

C) [4, ∞)

D) (-∞, 6)
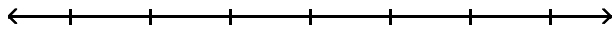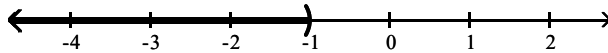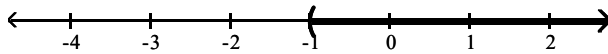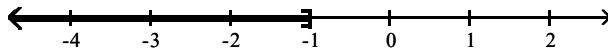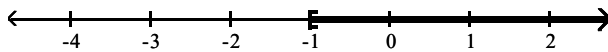
Answer: A
Objective: (9.6) Use the Addition Property of Inequality to Solve Inequalities

52) 6x ≤ 66

52) _____
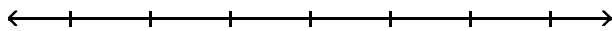
A) (-∞, 11]
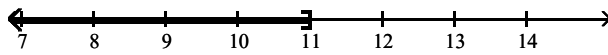
B) (-∞, 11)
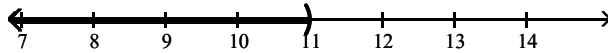
C) (11, ∞)

D) [11, ∞)
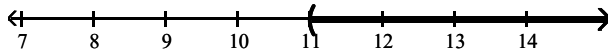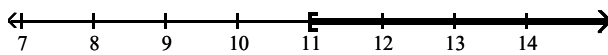
Answer: A
Objective: (9.6) Use the Multiplication Property of Inequality to Solve Inequalities

Solve the inequality. Graph the solution set and write it in interval notation.
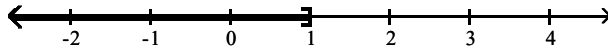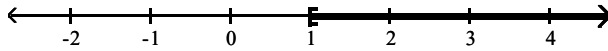
53) $21x + 9 > 3(6x + 4)$

53) _____
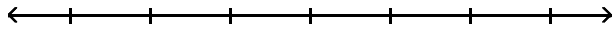
A) $(1, \infty)$
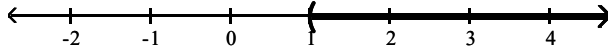
B) $(-\infty, 1)$

C) $(-\infty, 1]$

D) $[1, \infty)$
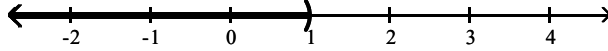
Answer: A
Objective: (9.6) Use Both Properties to Solve Inequalities
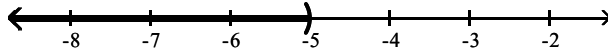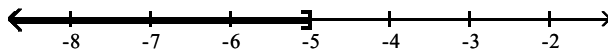
54) $-16x - 32 \leq -4(3x + 3)$

54) _____
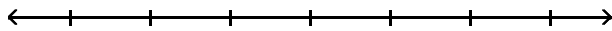
A) $[-5, \infty)$
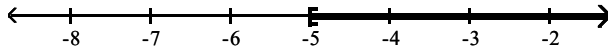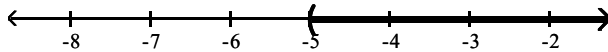
B) $(-\infty, -5)$

C) $(-\infty, -5]$

D) $(-5, \infty)$

Answer: A
Objective: (9.6) Use Both Properties to Solve Inequalities

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

55) $-2y + 3x = -15; (5, 0)$

55) _____

A) no   B) yes
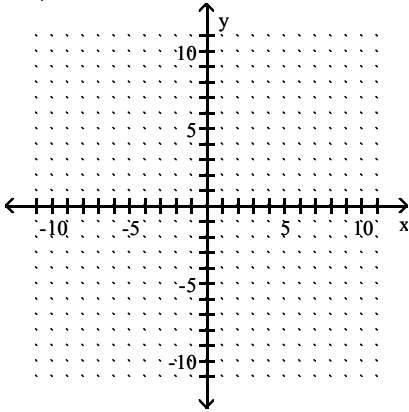
Answer: A
Objective: (10.1) Determine whether an ordered pair is a solution of an equation in two variables.

Find three ordered pair solutions by completing the table. Then use the ordered pairs to graph the equation.
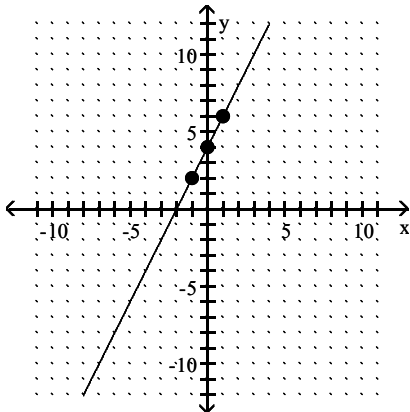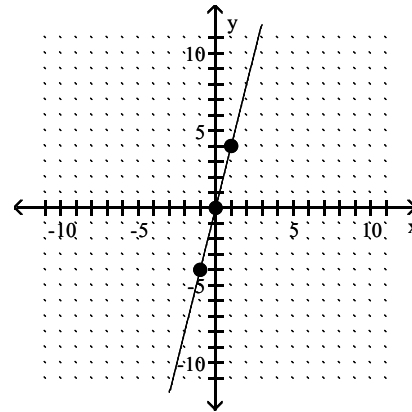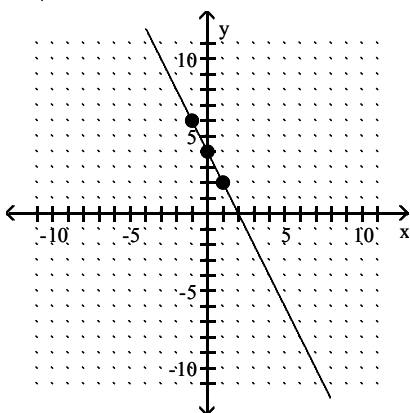
56) y = 2x + 4

x	y
0	
1	
−1	

A)

x	y
0	4
1	6
−1	2

B)

x	y
0	0
1	4
−1	−4

C)

x	y
0	4
1	2
−1	6

D)

x	y
0	−4
1	−2
−1	−6

Answer: A

56) _____

57) y = –2x – 4   57) _____

x	y
0	
1	
–1	

A)

x	y
0	–4
1	–6
–1	–2

B)

x	y
0	0
1	4
–1	–4

12

C)

x	y
0	-4
1	-2
-1	-6

D)
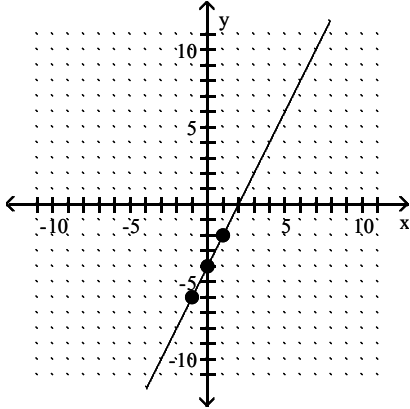
x	y
0	4
1	2
-1	6

Answer: A

Objective: (10.2) Graph a linear equation by finding and plotting ordered pair solutions.

Graph the linear equation.

58) $5y - 25x = 10$

58) _____
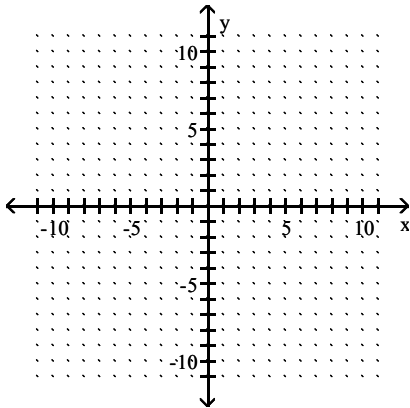
A)

B)

13

C)

D)

Answer: A

Objective: (10.2) Graph a linear equation by finding and plotting ordered pair solutions.
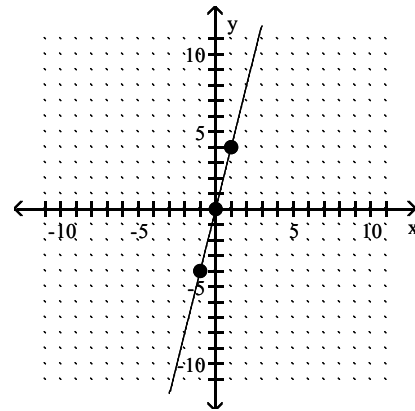
59) $y = \frac{1}{8}x + 4$

59) _____

A)
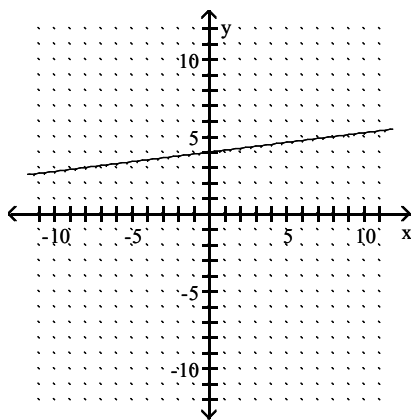
B)
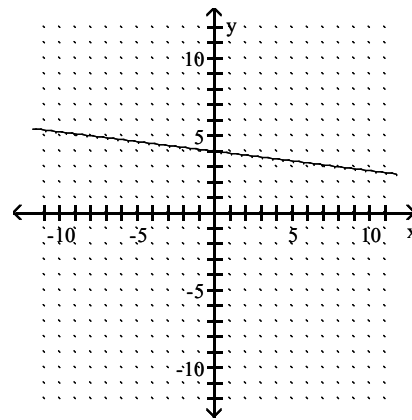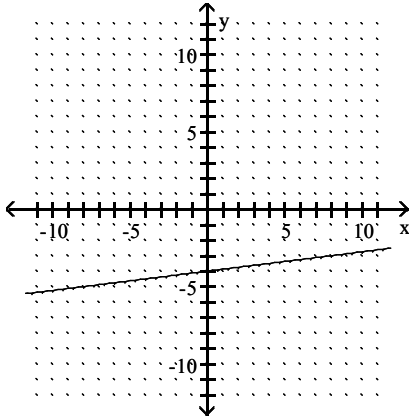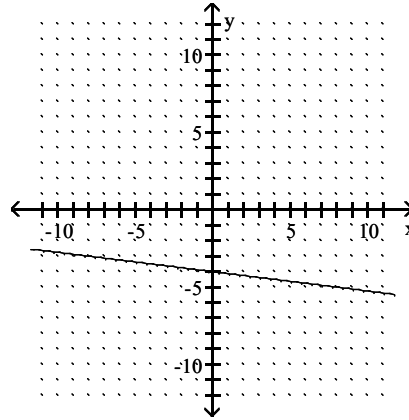
14

C)

D)

Answer: A

Match the graph with its equation.

60) y = 5x + 3

60) _____

A)
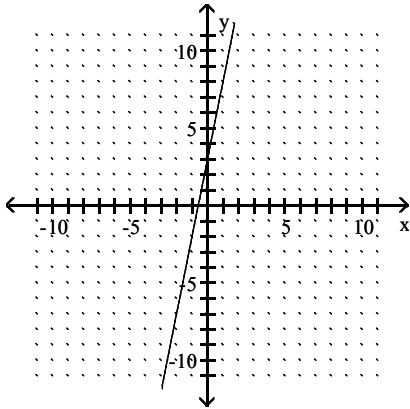
B)
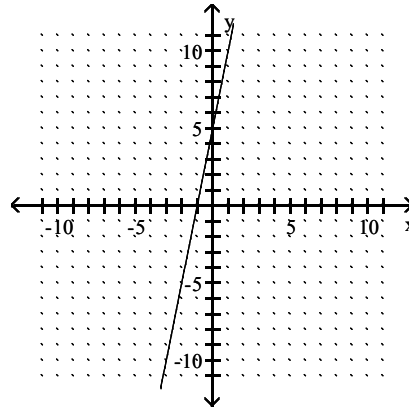
C)
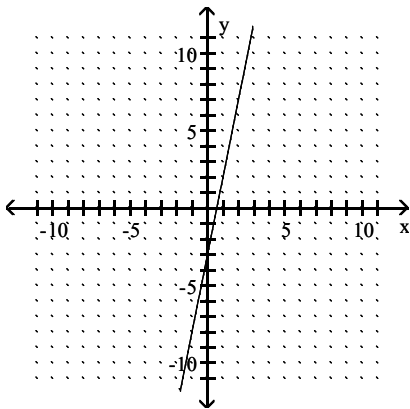
D)
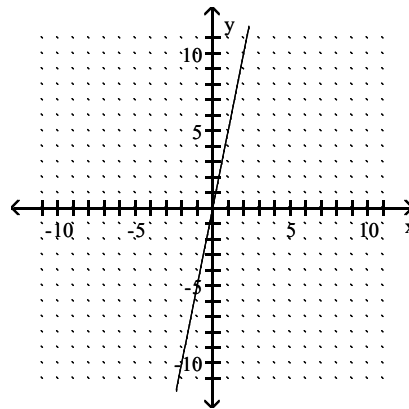
Answer: A

15

61) y = 2x – 6

A)

B)

C)

D)

61) _____

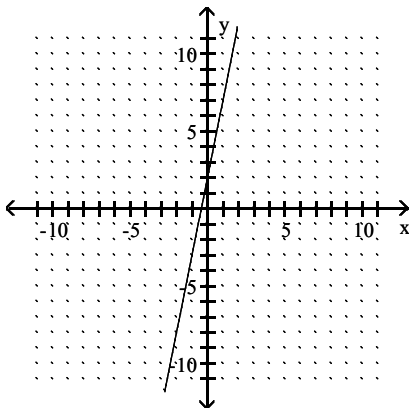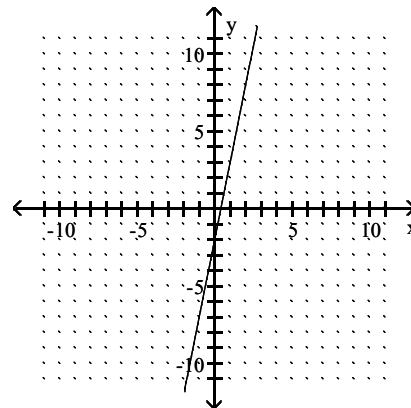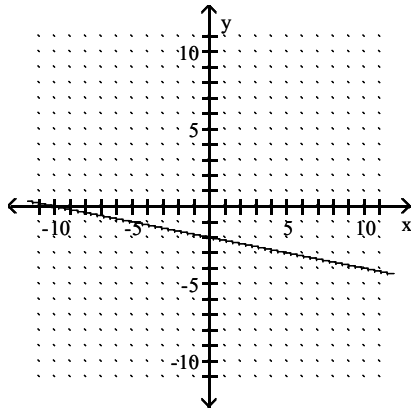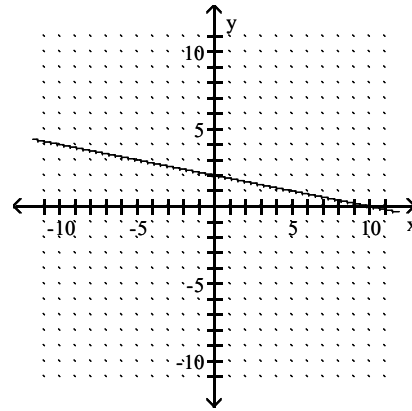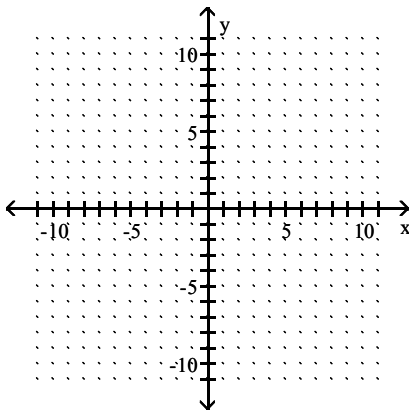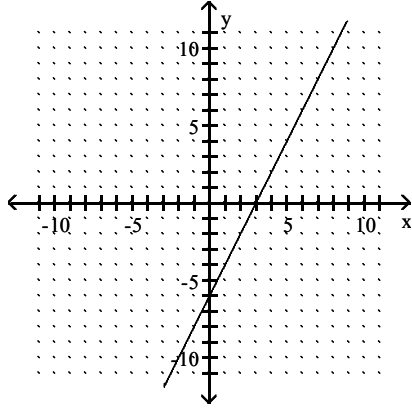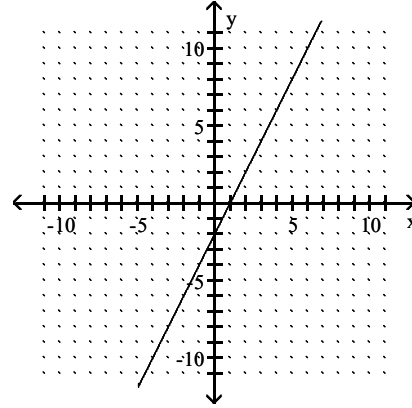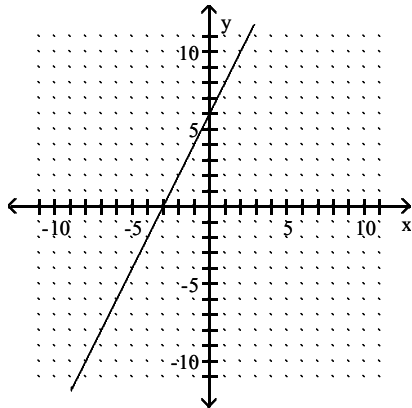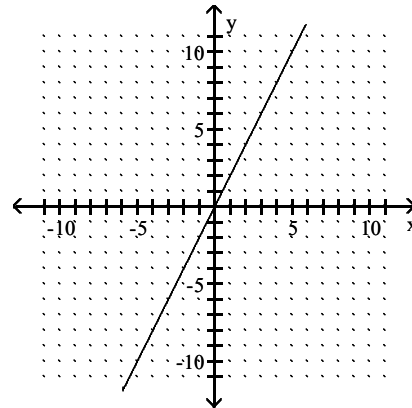Answer: A
Objective: (10.2) Graph a linear equation by finding and plotting ordered pair solutions.

Find the slope of the line that passes through the given points.

62) (8, 5) and (6, 9)

A) – 2 B) $-\dfrac{1}{2}$ C) 1 D) 2

62) _____

Answer: A
Objective: (10.4) Find the slope of a line given two points of the line.

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

63) Slope 2, through (5, 2)

A) y = 2x – 8 B) y = 2x + 8 C) x = 2y – 8 D) x = 2y + 8

63) _____

Answer: A
Objective: (10.5) Use the point–slope form to find an equation of a line given its slope and a point of the line.

Evaluate the function.

64) Find f(4) when f(x) = x^2 + 4x – 3.

A) 29 B) 35 C) 3 D) –3

64) _____

Answer: A
Objective: (10.6) Use function notation.

65) Find $f(0)$ when $f(x) = x^2 + 4x + 4$.　　　　　　　　　　　　　　　　　65) _____
　　　A) 4　　　　　　　　B) –4　　　　　　　C) 0　　　　　　　D) 16

Answer: A
Objective: (10.6) Use function notation.

66) Find $f(-3)$ when $f(x) = 3x^2 + 3x - 6$.　　　　　　　　　　　　　　　66) _____
　　　A) 12　　　　　　　　B) 30　　　　　　　C) 24　　　　　　　D) 27

Answer: A
Objective: (10.6) Use function notation.

67) Find $f(19)$ when $f(x) = |x - 1|$　　　　　　　　　　　　　　　　　　67) _____
　　　A) 18　　　　　　　　B) –20　　　　　　　C) 20　　　　　　　D) –18

Answer: A
Objective: (10.6) Use function notation.

Solve the system of equations by the substitution method.

68) $\begin{cases} x + y = 56 \\ \quad y = -9x \end{cases}$　　　　　　　　　　　　　　　　　　　　　68) _____
　　　A) (–7, 63)　　　　　　　　　　　B) (63, –7)
　　　C) infinite number of solutions　　　D) no solution

Answer: A
Objective: (11.2) Use the substitution method to solve a system of linear equations.

Solve the system of equations by the addition method.

69) $\begin{cases} 5x + y = -58 \\ 5x - y = 8 \end{cases}$　　　　　　　　　　　　　　　　　　　69) _____
　　　A) (–5, –33)　　　　　　　　　　B) (–33, –5)
　　　C) infinite number of solutions　　　D) no solution

Answer: A
Objective: (11.3) Use the addition method to solve a system of linear equations.

70) $\begin{cases} -2x + 3y = 2 \\ -3x + 5y = 2 \end{cases}$　　　　　　　　　　　　　　　　　　70) _____
　　　A) (– 4, – 2)　　　　　　　　　　B) (– 2, – 4)
　　　C) infinite number of solutions　　　D) no solution

Answer: A
Objective: (11.3) Use the addition method to solve a system of linear equations.

71) $\begin{cases} x + y = 7 \\ x + y = 4 \end{cases}$　　　　　　　　　　　　　　　　　　　　71) _____
　　　A) no solution　　　　B) (0, 0)　　　　　C) (7, 4)　　　　　D) (0, 11)

Answer: A
Objective: (11.3) Use the addition method to solve a system of linear equations.

72) $\begin{cases} -2x + 2y = -5 \\ 6x - 6y = 15 \end{cases}$

72) _____

    A) infinite number of solutions   B) (0, 0)

    C) (–2, 2)   D) no solution

Answer: A

Solve.

73) The circle has a radius of 6y centimeters. Find its area. Do not approximate π. ($A = \pi r^2$)

73) _____
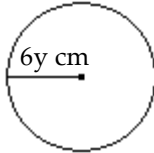
    A) $36y^2\pi$ sq cm   B) $12y^2\pi$ sq cm   C) $36y\pi$ sq cm   D) $12y\pi$ sq cm

Answer: A

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

74) $(2a^4b)^2$

74) _____

    A) $4a^8b^2$ B) $2a^6b^2$ C) $2a^8b^2$ D) $4a^6b^2$

Answer: A

75) $(4x^3y^3)^2$

75) _____

    A) $16x^6y^6$ B) $4x^5y^5$ C) $4x^6y^6$ D) $16x^5y^5$

Answer: A

76) $\left(\dfrac{xy}{4}\right)^2$

76) _____

    A) $\dfrac{x^2y^2}{16}$ B) $\dfrac{xy^2}{16}$ C) $\dfrac{x^2y^2}{4}$ D) $\dfrac{xy}{16}$

Answer: A

77) $\left(\dfrac{pm^7}{q^6}\right)^3$

77) _____

    A) $\dfrac{p^3m^{21}}{q^{18}}$ B) $\dfrac{pm^{10}}{q^9}$ C) $\dfrac{pm^{21}}{q^{18}}$ D) $\dfrac{p^3m^{10}}{q^9}$

Answer: A

78) $\left(\dfrac{2x^3y^3}{z^3}\right)^4$

78) _____

A) $\dfrac{16x^{12}y^{12}}{z^{12}}$ B) $\dfrac{2x^{12}y^{12}}{z^{12}}$ C) $\dfrac{16x^7y^7}{z^7}$ D) $\dfrac{2x^{12}y^{12}}{z^7}$

Answer: A
Objective: (12.1) Use the power rules for products and quotients.

Use the quotient rule to simplify the expression.

79) $\dfrac{d^7}{d}$

79) _____

A) d^6 B) d^8 C) $d^7 - d$ D) 7

Answer: A
Objective: (12.1) Use the quotient rule for exponents.

80) $\dfrac{s^7t^9}{s^2t}$

80) _____

A) s^5t^8 B) s^9t^{10} C) s^5t^9 D) s^5t^7

Answer: A
Objective: (12.1) Use the quotient rule for exponents.

81) $\dfrac{45m^3n^7}{9m^2n^5}$

81) _____

A) $5mn^2$ B) $45mn^2$ C) $5m^5n^{12}$ D) $5n^2$

Answer: A
Objective: (12.1) Use the quotient rule for exponents.

Simplify the expression.

82) $(-4z^2)(5z^3)$

82) _____

A) $-20z^5$ B) $-20z^6$ C) $2000z^5$ D) $20z^6$

Answer: A
Objective: (12.1) Decide which rule(s) to use to simplify an expression.

83) $\dfrac{2x^7}{x^3}$

83) _____

A) $2x^4$ B) $16x^4$ C) $2x^{10}$ D) $8x$

Answer: A
Objective: (12.1) Decide which rule(s) to use to simplify an expression.

84) $\dfrac{2a^8b^5c^{13}}{abc}$

84) _____

A) $2a^7b^4c^{12}$ B) $2a^9b^6c^{14}$ C) $\dfrac{a^7b^4c^{12}}{2}$ D) $\dfrac{2a^7b^4c^{12}}{abc}$

Answer: A
Objective: (12.1) Decide which rule(s) to use to simplify an expression.

Simplify.

85) If $P(x) = -5x + 1$, find $P(-3)$.   85) _____
    A) 16   B) –14   C) 14   D) –16

Answer: A
Objective: (12.2) Define polynomial functions.

86) If $Q(x) = -3x^2 + 4x + 2$, find $Q(-1)$.   86) _____
    A) –5   B) 1   C) 3   D) 9

Answer: A
Objective: (12.2) Define polynomial functions.

87) If $P(x) = 3x^2 - 6x$, find $P(-5)$.   87) _____
    A) 105   B) 75   C) 15   D) 64

Answer: A
Objective: (12.2) Define polynomial functions.

88) If $Q(x) = 3x^2 + x - 5$, find $Q(0)$.   88) _____
    A) –5   B) –2   C) 5   D) 0

Answer: A
Objective: (12.2) Define polynomial functions.

Perform the indicated operation.

89) $(14x + 5) - (-13x^2 - 7x + 5)$ 89) _____
    A) $13x^2 + 21x$ B) $13x^2 + 21x - 10$ C) $-13x^2 + 7x + 10$ D) $13x^2 - 21x$

Answer: A
Objective: (12.2) Add and subtract polynomials.

Multiply.

90) $9x(-8x + 11)$ 90) _____
    A) $-72x^2 + 99x$ B) $27x^2$ C) $-72x^2 + 11x$ D) $-8x^2 + 99x$

Answer: A
Objective: (12.3) Use the distributive property to multiply polynomials.

91) $-5x(-8x^2 + 2x - 3)$ 91) _____
    A) $40x^3 - 10x^2 + 15x$ B) $40x^3 + 2x - 3$
    C) $40x^2 - 10x + 15$ D) $40x^3 - 10x^2 + 15$

Answer: A
Objective: (12.3) Use the distributive property to multiply polynomials.

92) $6x^2(-2x^2 + 2x + 6)$ 92) _____
    A) $-12x^4 + 12x^3 + 36x^2$ B) $-12x^4 + 12x^2 + 36$
    C) $4x^4 + 8x + 12$ D) $-12x^4 + 12x + 36$

Answer: A
Objective: (12.3) Use the distributive property to multiply polynomials.

93) $2x(8x^2 - 5xy + 4y^2)$ 93) _____

    A) $16x^3 - 10x^2y + 8xy^2$ B) $16x^3 - 10xy + 8y^2$

    C) $16x^3 + 10x^2y + 8xy^2$ D) $16x^3y - 5xy + 4y^2$

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

94) $(a + 8)(a + 1)$ 94) _____

    A) $2a + 8$ B) $a^2 + 9a + 9$ C) $a^2 + 9a + 8$ D) $2a^2 + 8$

Answer: C

Objective: (12.3) Use the distributive property to multiply polynomials.

95) $(x - 4)(x - 6)$ 95) _____

    A) $x^2 - 10x + 24$ B) $x^2 + 10x - 24$ C) $2x^2 - 24$ D) $2x + 24$

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

96) $(9z + 11)^2$ 96) _____

    A) $81z^2 + 198z + 121$ B) $81z^2 + 121$

    C) $9z^2 + 198z + 121$ D) $9z^2 + 121$

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

97) $(2x - 11)(x + 11)$ 97) _____

    A) $2x^2 + 11x - 121$ B) $x^2 - 121x + 11$ C) $2x^2 + 10x - 121$ D) $x^2 + 11x + 10$

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

98) $(b - 5)(b^2 + 5b + 3)$ 98) _____

    A) $b^3 + 28b + 15$ B) $b^3 - 22b - 15$
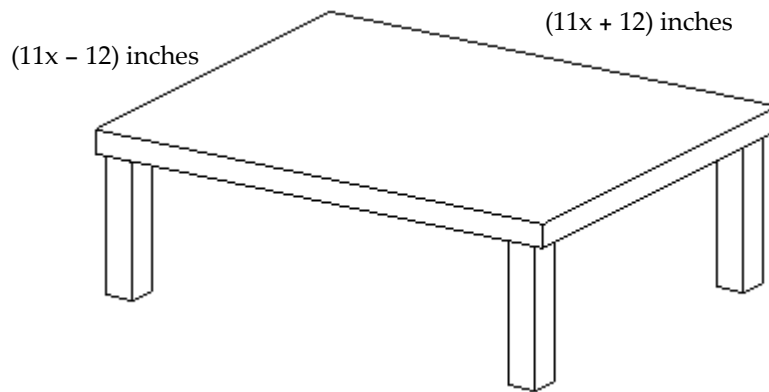
    C) $b^3 - 10b^2 - 22b - 15$ D) $b^3 + 10b^2 + 22b + 15$

Answer: B

Objective: (12.3) Use the distributive property to multiply polynomials.

Solve.

99) Find the area of the top of the table. Express the area as a product, then multiply and simplify.   99) _____

(11x + 12) inches

(11x – 12) inches

A) $(121x^2 - 144)$ sq in.   B) $(x^2 - 144)$ sq in.

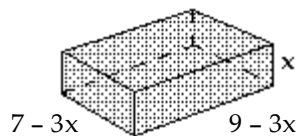C) $(121x^2 - 264x - 144)$ sq in.   D) $(121x^2 + 264x - 144)$ sq in.

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

100) Find the volume of the rectangular solid. Express the volume as a product, then multiply and   100) _____
simplify.

7 – 3x   9 – 3x

A) $9x^3 - 48x^2 + 63x$ B) $9x^2 - 48x + 64$

C) $-9x^3 + 36x^2 + 63x$ D) $-9x^2 + 36x + 64$

Answer: A

Objective: (12.3) Use the distributive property to multiply polynomials.

Multiply vertically.

101) $(6x - 1)(x^2 - 4x + 1)$ 101) _____

A) $6x^3 - 23x^2 + 2x - 1$ B) $6x^3 - 25x^2 + 10x - 1$

C) $6x^3 - 24x^2 + 6x + 1$ D) $6x^3 + 25x^2 - 10x + 1$

Answer: B

Objective: (12.3) Multiply polynomials vertically.

Multiply.

102) $(3a - 7)^2$ 102) _____

A) $9a^2 - 42a + 49$ B) $9a^2 + 49$ C) $3a^2 - 42a + 49$ D) $3a^2 + 49$

Answer: A

Objective: (12.4) Square a binomial.

103) $(x + 11)(x - 11)$

    A) $x^2 - 121$ B) $x^2 - 22$ C) $x^2 - 22x - 121$ D) $x^2 + 22x - 121$

103) _____

Answer: A

Objective: (12.4) Multiply the sum and difference of two terms.

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

104) 5^{-4}

    A) $\dfrac{1}{625}$ B) -625 C) 625 D) $\dfrac{1}{20}$

104) _____

Answer: A

Objective: (12.5) Simplify expressions containing negative exponents.

105) $\dfrac{2^{-7}x^{-5}y^3}{2^{-4}x^{-8}y^6}$

    A) $\dfrac{x^3}{8y^3}$ B) $\dfrac{1}{8x^8y^3}$ C) $\dfrac{3x^3}{y^3}$ D) $\dfrac{8}{x^3y^3}$

105) _____

Answer: A

Objective: (12.5) Use all the rules and definitions for exponents to simplify exponential expressions.

Perform the division.

106) $\dfrac{6r^8 - 10r^3}{2r}$

    A) $3r^7 - 5r^2$ B) $6r^7 - 10r^2$ C) $3r^9 - 5r^4$ D) $3r^8 - 5r^3$

106) _____

Answer: A

Objective: (12.6) Divide a polynomial by a monomial.

107) $\dfrac{21x^2 + 9x - 11}{3x}$

    A) $7x + 3 - \dfrac{11}{3x}$ B) $7x^2 + 3x - \dfrac{11}{3}$ C) $21x + 9 - \dfrac{11}{3x}$ D) $7x - 8$

107) _____

Answer: A

Objective: (12.6) Divide a polynomial by a monomial.

Find the quotient using long division.

108) $\dfrac{x^2 + 9x + 6}{x + 2}$

    A) $x + 7 - \dfrac{8}{x + 2}$ B) $x + 7 + \dfrac{8}{x + 2}$ C) $\dfrac{x + 7}{x + 2}$ D) $x + 8$

108) _____

Answer: A

Objective: (12.6) Use long division to divide a polynomial by another polynomial.

Factor out the GCF from the polynomial.

109) $30x + 10$

    A) $10(3x + 1)$ B) $5(6x + 2)$ C) $2(15x + 5)$ D) $10(3x)$

109) _____

Answer: A

Objective: (13.1) Factor out the greatest common factor from a polynomial.

23

110) $20x^4y + 36xy^3$

A) $4x(5x^3y + 9y^3)$ B) $4y(5x^4 + 9xy^2)$ C) $4xy(5x^3 + 9y^2)$ D) $xy(20x^3 + 36y^2)$

Answer: C

110) _____

Factor the four–term polynomial by grouping.

111) $3xy - 9x + 7y - 21$

A) $(3x + 7)(y - 3)$ B) $(3x - 3)(y + 7)$ C) $(3x + 7y)(y - 3)$ D) $(3x + y)(7y - 3)$

Answer: A

111) _____

Factor the trinomial completely. If the polynomial cannot be factored, write "prime."

112) $x^2 - x - 56$

A) $(x + 7)(x - 8)$ B) $(x + 8)(x - 7)$ C) $(x + 1)(x - 56)$ D) prime

Answer: A

112) _____

113) $x^2 - x - 42$

A) $(x + 7)(x - 6)$ B) prime   C) $(x + 6)(x - 7)$ D) $(x + 1)(x - 42)$

Answer: C

113) _____

114) $x^2 + x - 30$

A) $(x - 5)(x + 6)$ B) $(x - 6)(x + 5)$ C) $(x + 1)(x - 30)$ D) prime

Answer: A

114) _____

115) $x^2 + 4x - 45$

A) $(x + 9)(x - 5)$ B) $(x - 9)(x + 5)$ C) $(x - 9)(x + 1)$ D) prime

Answer: A

115) _____

116) $x^2 - 3x - 88$

A) $(x - 11)(x + 8)$ B) $(x + 11)(x - 8)$ C) $(x - 88)(x + 1)$ D) prime

Answer: A

116) _____

117) $x^2 + 2x - 35$

A) $(x + 7)(x - 5)$ B) $(x - 7)(x - 5)$ C) $(x - 7)(x + 1)$ D) prime

Answer: A

117) _____

118) $x^2 + 12xy + 32y^2$

A) $(x + 4y)(x + 8y)$ B) $(x - 4y)(x + 8y)$ C) $(x - 4y)(x + y)$ D) prime

Answer: A

118) _____

119) $u^2 - 2uv - 8v^2$

    A) $(u + 2v)(u - 4v)$ B) $(u - 2v)(u + 4v)$ C) $(u - 2v)(u + v)$ D) prime

    Answer: A

    Objective: (13.2) Factor trinomials of the form x^2 + bx + c.

119) _____

120) $u^2 - 3uv - 28v^2$

    A) $(u + 4v)(u - 7v)$ B) $(u - 4v)(u + v)$ C) $(u - 4v)(u + 7v)$ D) prime

    Answer: A

    Objective: (13.2) Factor trinomials of the form x^2 + bx + c.

120) _____

121) $x^2 + 4xy - 12y^2$

    A) $(x + 6y)(x - 2y)$ B) $(x - 6y)(x + 2y)$ C) $(x - 6y)(x + y)$ D) $(x - y)(x + 2y)$

    Answer: A

    Objective: (13.2) Factor trinomials of the form x^2 + bx + c.

121) _____

122) $x^2 + 3xy - 18y^2$

    A) $(x - 6y)(x + 3y)$ B) $(x + 6y)(x - 3y)$ C) $(x - 6y)(x + y)$ D) $(x - y)(x + 3y)$

    Answer: B

    Objective: (13.2) Factor trinomials of the form x^2 + bx + c.

122) _____

123) $9x^2 - 9x - 54$

    A) $9(x + 2)(x - 3)$ B) $(9x + 18)(x - 3)$ C) $9(x - 2)(x + 3)$ D) prime

    Answer: A

    Objective: (13.2) Factor out the greatest common factor and then factor a trinomial of the form x^2 + bx + c.

123) _____

124) $8x^2 - 24xy - 32y^2$

    A) $8(x + y)(x - 4y)$ B) $8(x - y)(x + 4y)$

    C) $(8x - 8y)(x + 4y)$ D) prime

    Answer: A

    Objective: (13.2) Factor out the greatest common factor and then factor a trinomial of the form x^2 + bx + c.

124) _____

125) $3x^2 - 18x + 24$

    A) $3(x - 4)(x - 2)$ B) $3(x - 8)(x + 1)$ C) $(x - 4)(3x - 6)$ D) prime

    Answer: A

    Objective: (13.2) Factor out the greatest common factor and then factor a trinomial of the form x^2 + bx + c.

125) _____

Factor the binomial completely.

126) $z^2 - 121$

    A) prime   B) $(z - 11)^2$ C) $(z + 11)(z - 11)$ D) $(z + 11)^2$

    Answer: C

    Objective: (13.5) Factor the difference of two squares.

126) _____

127) $81x^2 - 49$

    A) $(9x + 7)(9x - 7)$ B) $(9x - 7)^2$ C) $(9x + 7)^2$ D) prime

    Answer: A

    Objective: (13.5) Factor the difference of two squares.

127) _____

128) $121 - w^2$

    A) $(11 - w)(11 + w)$ B) $(11 + w)^2$ C) $(11 - w)^2$ D) prime

128) _____

Answer: A
Objective: (13.5) Factor the difference of two squares.

129) $64 - 81x^2$

    A) $(8 + 9x)(8 - 9x)$ B) $(8 - 9x)^2$ C) $(8 + 9x)^2$ D) prime

129) _____

Answer: A
Objective: (13.5) Factor the difference of two squares.

130) $w^2r^2 - 1$

    A) $(wr + 1)(wr - 1)$ B) $(wr + 1)^2$ C) $(wr - 1)^2$ D) prime

130) _____

Answer: A
Objective: (13.5) Factor the difference of two squares.

131) $25x^2 - 36y^2$

    A) $(5x + 6y)(5x - 6y)$ B) $(5x - 6y)^2$

    C) $(5x + 6y)^2$ D) prime

131) _____

Answer: A
Objective: (13.5) Factor the difference of two squares.

132) $x^2 - \dfrac{25}{64}$

    A) $\left(x + \dfrac{5}{8}\right)\left(x - \dfrac{5}{8}\right)$ B) $\left(x - \dfrac{5}{8}\right)^2$ C) $\left(x + \dfrac{5}{8}\right)\left(\dfrac{5}{8} - x\right)$ D) $\left(x + \dfrac{5}{8}\right)^2$

132) _____

Answer: A
Objective: (13.5) Factor the difference of two squares.

Solve the equation.

133) $(x - 6)(x + 4) = 0$

    A) 6, –4   B) –6, 4   C) 6, –6, 4, –4   D) 6, 4

133) _____

Answer: A
Objective: (13.6) Solve quadratic equations by factoring.

134) $x(x + 17) = 0$

    A) –17, 0   B) 17, 0   C) 1, –17   D) –1, –17

134) _____

Answer: A
Objective: (13.6) Solve quadratic equations by factoring.

135) $x^2 + 2x - 80 = 0$

    A) –10, 8   B) 10, 8   C) –10, 1   D) 10, –8

135) _____

Answer: A
Objective: (13.6) Solve quadratic equations by factoring.

136) $x^2 - 7x - 18 = 0$ 136) _____
    A) 9, – 2   B) –9, 2   C) –9, – 2   D) –18, 0

Answer: A

137) $x^2 - x = 72$ 137) _____
    A) –8, 9   B) 8, 9   C) 1, 72   D) –8, –9

Answer: A

138) $x^2 + 3x = 28$ 138) _____
    A) –7, 4   B) 7, 4   C) –7, 1   D) 7, –4

Answer: A

139) $x^2 - 2x = 48$ 139) _____
    A) 8, –6   B) 8, 6   C) –8, 1   D) –8, 6

Answer: A

140) $9x^2 - 16 = 0$ 140) _____
    A) $\frac{4}{3}, -\frac{4}{3}$ B) $\frac{4}{3}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}, -\frac{4}{3}, 0$

Answer: A

141) $10x^3 + 70x^2 + 120x = 0$ 141) _____
    A) 0, –3, –4   B) –3, –4   C) 0, 3, 4   D) $-\frac{1}{3}, -4$

Answer: A

142) $y^3 + 6y^2 + 9y = 0$ 142) _____
    A) 0, –3   B) 0, 3   C) 3, –3   D) 0, –3, 3

Answer: A

143) $9x^3 - 16x = 0$ 143) _____
    A) $\frac{4}{3}, -\frac{4}{3}, 0$ B) $\frac{4}{3}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}, -\frac{4}{3}$

Answer: A

Solve.

144) The area of a square is 49 square miles. Find the length of a side of the square.   144) _____

  A) 7 mi   B) 12.25 mi   C) 24.5 mi   D) –7 mi

  Answer: A
  Objective: (13.7) Solve problems that can be modeled by quadratic equations.

Find the domain of the rational expression.

145) $f(x) = \dfrac{5x}{4 - x}$ 145) _____

  A) {x∣x is a real number and x ≠ 4}   B) {x∣x is a real number and x ≠ 0}
  C) {x∣x is a real number and x ≠ –4}   D) {x∣x is a real number and x ≠ 0, x ≠ –4}

  Answer: A
  Objective: (14.1) Find the domain of a rational expression.

Simplify the expression.

146) $\dfrac{15x^3}{5x}$ 146) _____

  A) $3x^2$ B) $10x^2$ C) 10   D) 3x

  Answer: A
  Objective: (14.1) Simplify or write rational expressions in lowest terms.

147) $\dfrac{24x^2 + 18x}{24x}$ 147) _____

  A) $\dfrac{4x + 3}{4}$ B) $x^2 + 18$ C) $\dfrac{4x - 3}{4}$ D) $x^2 + 3$

  Answer: A
  Objective: (14.1) Simplify or write rational expressions in lowest terms.

148) $\dfrac{-6x - 6y}{x + y}$ 148) _____

  A) –6   B) $-\dfrac{1}{6}$ C) $\dfrac{1}{6}$ D) 6

  Answer: A
  Objective: (14.1) Simplify or write rational expressions in lowest terms.

149) $\dfrac{y^2 + 10y + 24}{y^2 + 13y + 42}$ 149) _____

  A) $\dfrac{y + 4}{y + 7}$ B) $\dfrac{10y + 24}{13y + 42}$ C) $\dfrac{10y + 4}{13y + 7}$ D) $-\dfrac{y^2 + 10y + 24}{y^2 + 13y + 42}$

  Answer: A
  Objective: (14.1) Simplify or write rational expressions in lowest terms.

Solve the problem.

150) If $f(x) = \dfrac{x - 8}{6x + 7}$, find $f(-2)$.

      A) 2   B) 1   C) 0   D) –2

150) _____

Answer: A

151) If $f(x) = \dfrac{x^3 + 4}{x^2 - 4}$, find $f(-4)$.

      A) – 5   B) $-\dfrac{15}{4}$ C) $-\dfrac{16}{3}$ D) $\dfrac{5}{3}$

151) _____

Answer: A

152) If $f(x) = \dfrac{x^2 - 2}{x^3 + 3x}$, find $f(2)$.

      A) $\dfrac{1}{7}$ B) $\dfrac{1}{4}$ C) $\dfrac{2}{11}$ D) $\dfrac{2}{7}$

152) _____

Answer: A

Find the product and simplify.

153) $\dfrac{2x^2}{4} \cdot \dfrac{24}{x^3}$

      A) $\dfrac{12}{x}$ B) $\dfrac{x}{12}$ C) $\dfrac{12x^2}{x^3}$ D) $\dfrac{48x^2}{4x^3}$

153) _____

Answer: A

Find the quotient and simplify.

154) $\dfrac{2z^2}{y^3} \div \dfrac{6z^2y^3}{7}$

      A) $\dfrac{7}{3y^6}$ B) $\dfrac{12z^4}{7}$ C) $\dfrac{7}{3}$ D) $\dfrac{7z^4}{3y^6}$

154) _____

Answer: A

Solve the equation.

155) $\dfrac{x + 3}{4} = \dfrac{x + 4}{5}$

      A) 1   B) $\dfrac{7}{9}$ C) $\dfrac{7}{20}$ D) $\dfrac{1}{20}$

155) _____

Answer: A

156) $\dfrac{5 - a}{a} + \dfrac{3}{4} = \dfrac{7}{a}$

156) _____

   A) –8   B) 4   C) 8   D) –4

   Answer: A
   Objective: (14.5) Solve equations containing rational expressions.

Graph the function.
   157) f(x) = |x + 2|

157) _____

A)

B)

C)

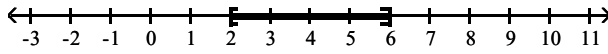

D)

   Answer: A
   Objective: (15.2) Graph nonlinear functions.

30
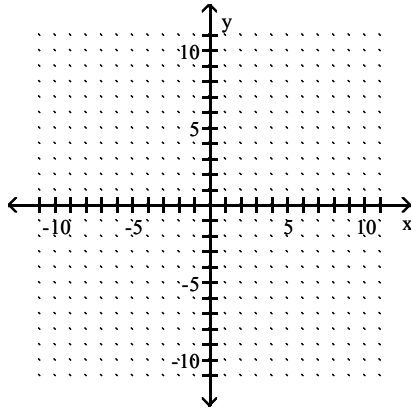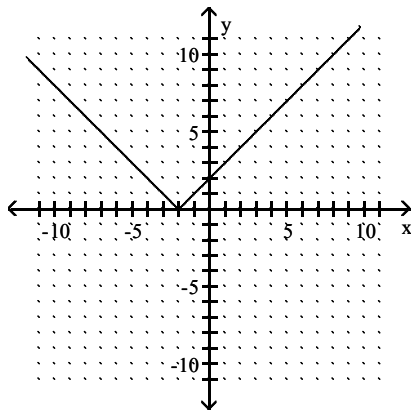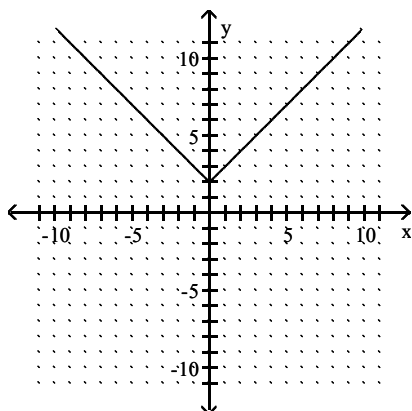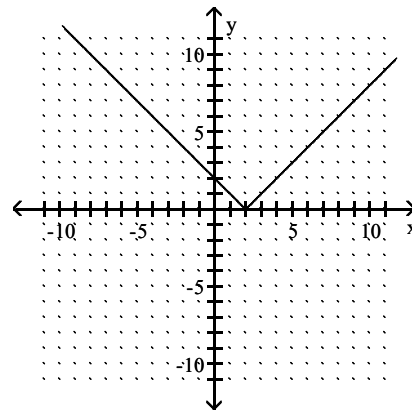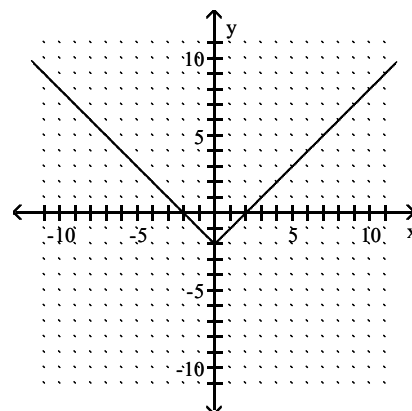
158) h(x) = −8x + 8

A)

B)

C)

D)
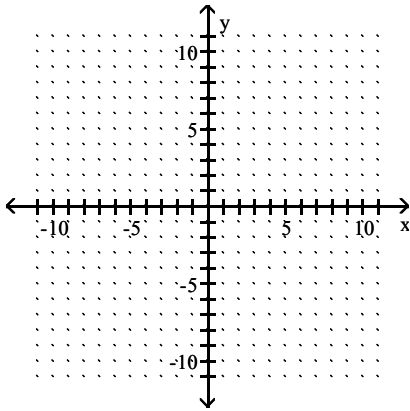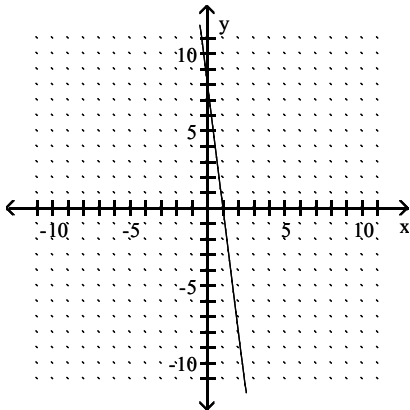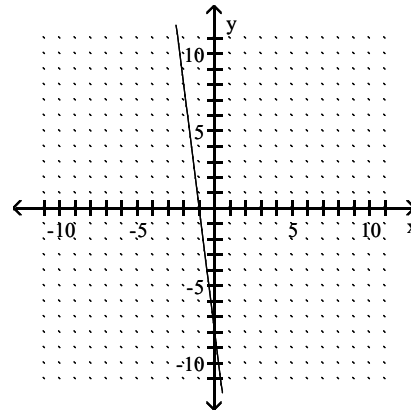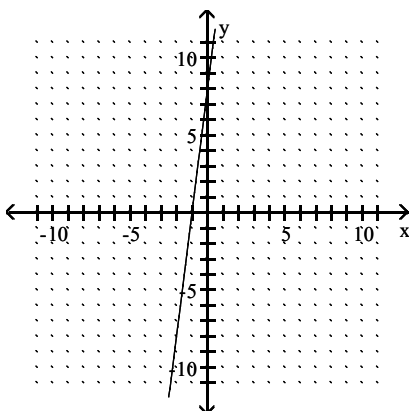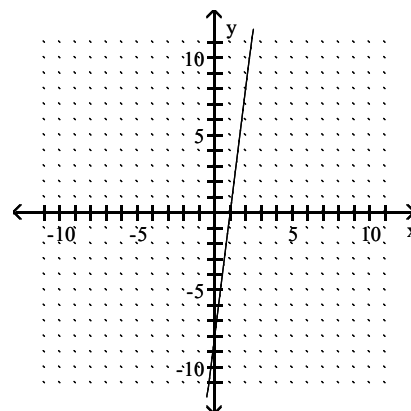
Answer: A
Objective: (15.2) Graph nonlinear functions.

159) $g(x) = \sqrt{x - 4}$

159) _____

A)

B)

C)

D)
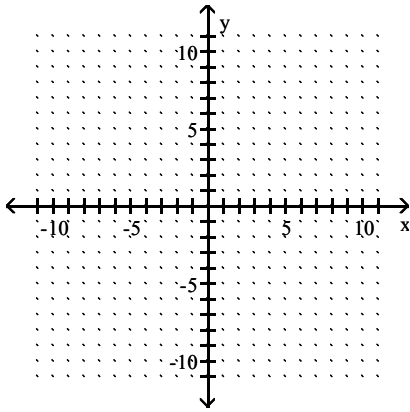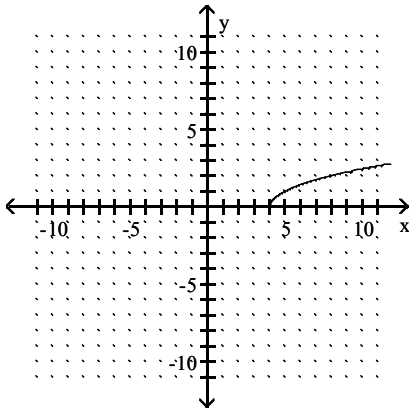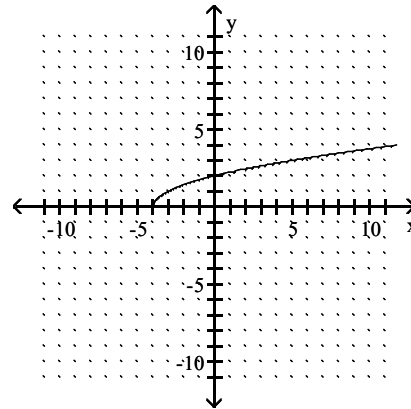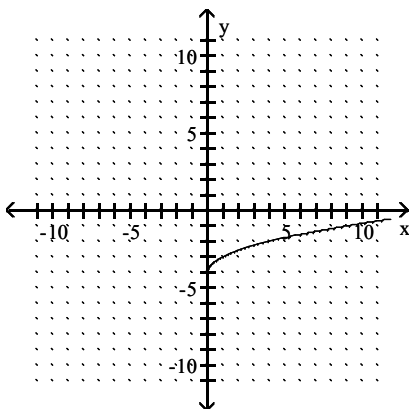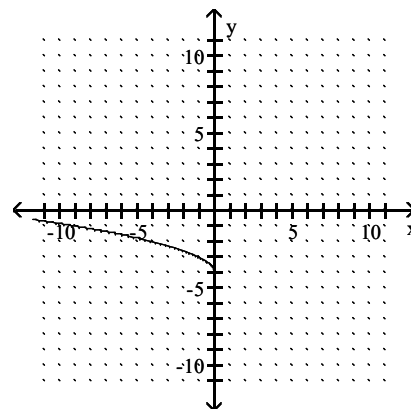
Answer: A
Objective: (15.2) Graph nonlinear functions.

Solve the compound inequality. Graph the solution set.

160) $13 \leq 4t + 5 \leq 29$ 160) _____
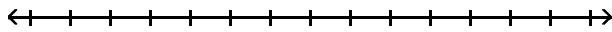
A) [2, 6]

B) (2, 6)
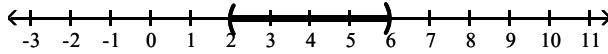
C) [-6, -2]
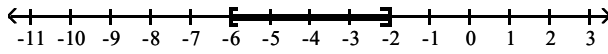
D) (-6, -2)
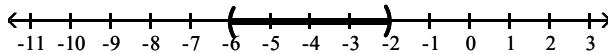
Answer: A

Objective: (16.1) Solve compound inequalities containing "and."

161) $-25 \leq -3c - 4 < -10$ 161) _____
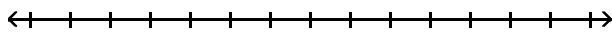
A) (2, 7]
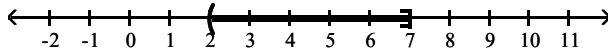
B) [2, 7)
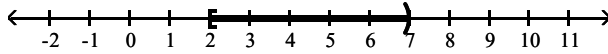
C) [-7, -2)
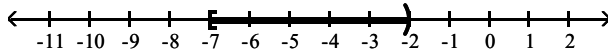
D) (-7, -2]
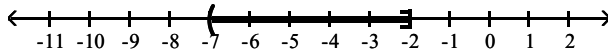
Answer: A

Objective: (16.1) Solve compound inequalities containing "and."

Solve the absolute value equation.

162) $|x + 3| = 6$ 162) _____
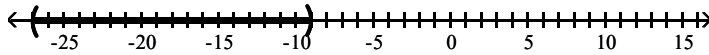
    A) -9, 3   B) 9, 3   C) -3   D) ∅

Answer: A

Objective: (16.2) Solve absolute value equations.

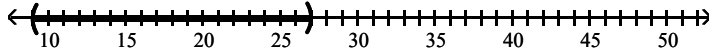**Solve the inequality. Graph the solution set.**

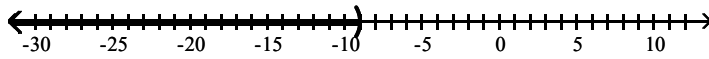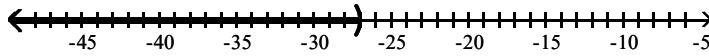163) $|x + 18| < 9$

163) _____

A) $(-27, -9)$

B) $(9, 27)$
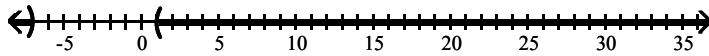

C) $(-\infty, -9)$

D) $(-\infty, -27)$

Answer: A

Objective: (16.3) Solve absolute value inequalities of the form $|X| < a$.
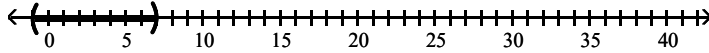
164) $|x + 3| > 4$
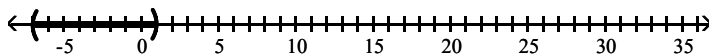
164) _____

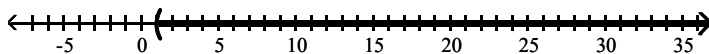A) $(-\infty, -7) \cup (1, \infty)$

B) $(-1, 7)$

C) $(-7, 1)$

D) $(1, \infty)$

Answer: A

Objective: (16.3) Solve absolute value inequalities of the form $|X| > a$.

Evaluate.

165) If $f(x) = \sqrt{2x + 6}$, find the value of $f(15)$.

165) _____

A) 6   B) 36   C) 30   D) $\sqrt{30}$

Answer: A

Objective: (17.1) Find function values of square and cube roots.

Solve.

166) $\sqrt{x + 4} = 8$ 166) _____

    A) 60   B) 64   C) 68   D) 144

Answer: A
Objective: (17.6) Solve equations that contain radical expressions.

167) $\sqrt{x - 1} = 2$ 167) _____

    A) 5   B) 4   C) 3   D) 9

Answer: A
Objective: (17.6) Solve equations that contain radical expressions.

168) $\sqrt{x + 5} - 7 = 0$ 168) _____

    A) 44   B) 49   C) 54   D) 144

Answer: A
Objective: (17.6) Solve equations that contain radical expressions.

Use the square root property to solve the equation.

169) $x^2 = 225$ 169) _____

    A) –15, 15   B) 15   C) –16, 16   D) 112.5

Answer: A
Objective: (18.1) Use the square root property to solve quadratic equations.

170) $x^2 = 11$ 170) _____

    A) $-\sqrt{11}, \sqrt{11}$ B) 121   C) $\dfrac{11}{2}$ D) $\sqrt{11}$

Answer: A
Objective: (18.1) Use the square root property to solve quadratic equations.

171) $(x - 5)^2 = 36$ 171) _____

    A) 11, –1   B) 41   C) 6, –6   D) –1, –11

Answer: A
Objective: (18.1) Use the square root property to solve quadratic equations.

172) $(x + 2)^2 = 15$ 172) _____

    A) $-2 - \sqrt{15}, -2 + \sqrt{15}$ B) $2 - \sqrt{15}, 2 + \sqrt{15}$
    C) $-\sqrt{15}, \sqrt{15}$ D) 13

Answer: A
Objective: (18.1) Use the square root property to solve quadratic equations.

Use the quadratic formula to solve the equation.

173) $x^2 - 2x - 48 = 0$ 173) _____

    A) – 6, 8   B) 6, –8   C) 6, 8   D) –48, 0

Answer: A
Objective: (18.2) Solve quadratic equations by using the quadratic formula.

174) $x^2 + 24x + 144 = 0$

    A) −12   B) 12   C) −12, 12   D) 12 − i, 12 + i

174) _____

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

175) $x^2 + 18x + 70 = 0$

    A) $-9 - \sqrt{11}, -9 + \sqrt{11}$ B) $9 + \sqrt{11}$

    C) $9 - \sqrt{70}, 9 + \sqrt{70}$ D) $-18 + \sqrt{70}$

175) _____

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

176) $x^2 - 8x + 20 = 0$

    A) 4 − 2i, 4 + 2i   B) 4 − 4i, 4 + 4i   C) 4 + 2i   D) 6, 2

176) _____

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

177) $2x^2 - 7x - 9 = 0$

    A) $\frac{9}{2}, -1$ B) $\frac{2}{9}, -1$ C) $\frac{2}{9}, 1$ D) $\frac{2}{9}, 0$

177) _____

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

178) $3x^2 - 5x - 8 = 0$

    A) $\frac{8}{3}, -1$ B) $\frac{3}{8}, -1$ C) $\frac{3}{8}, 1$ D) $\frac{3}{8}, 0$

178) _____

Answer: A

Objective: (18.2) Solve quadratic equations by using the quadratic formula.

Solve.

179) The product of a number and 2 less than the number is 15. Find the number.

    A) −3 or 5   B) −2 or 6   C) −6 or 2   D) −5 or 3
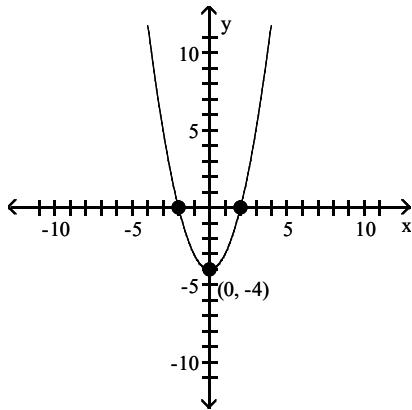
179) _____

Answer: A

Objective: (18.3) Solve problems that lead to quadratic equations.
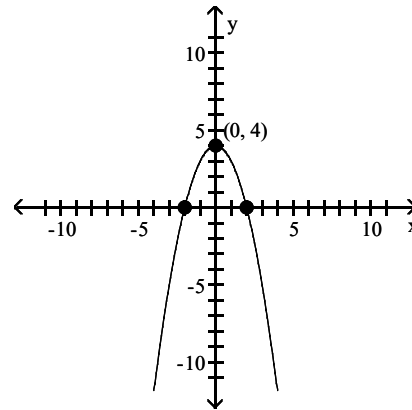
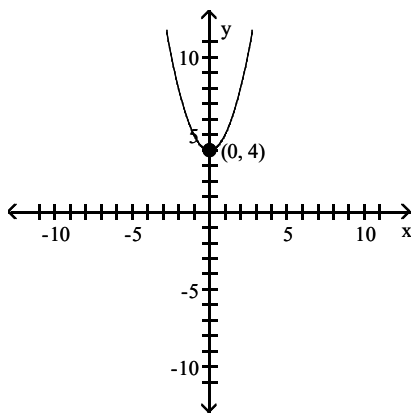**Match the function with its graph.**

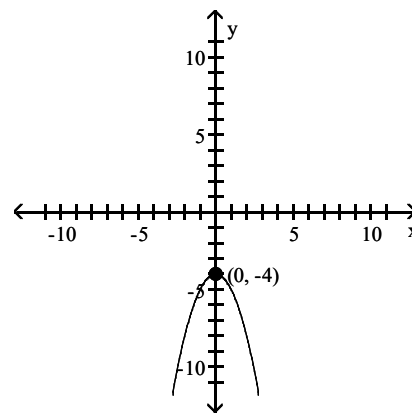180) $f(x) = x^2 - 4$

180) _____

A)

B)

C)

D)

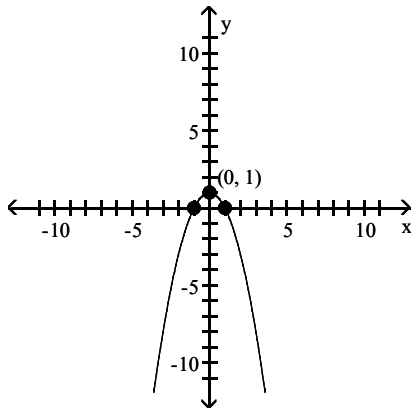Answer: A
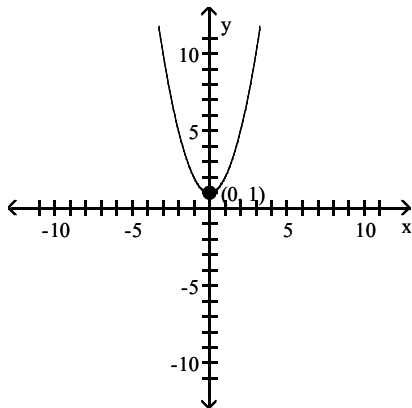Objective: (18.6) Graph a quadratic function and find the vertex, intercepts, and direction of opening.

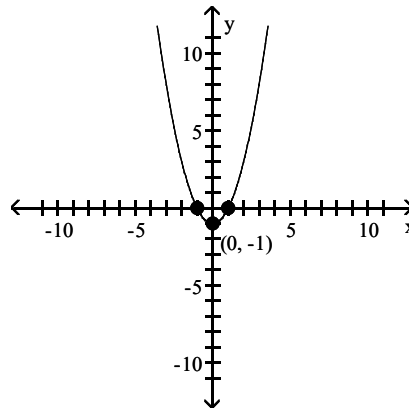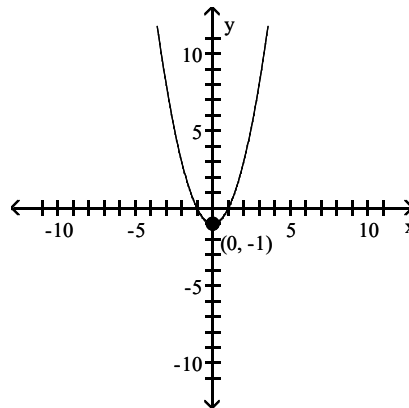181) $f(x) = -x^2 + 1$ 181) _____

A)

B)

C)

D)

Answer: A
Objective: (18.6) Graph a quadratic function and find the vertex, intercepts, and direction of opening.

Solve.

182) Four bacteria are placed in a petri dish. The population will triple every day. The formula for the   182) _____
number of bacteria in the dish on day t is $N(t) = 4(3)^t$, where t is the number of days after the four
bacteria are placed in the dish. How many bacteria are in the dish five days after the four bacteria
are placed in the dish?

   A) 972 bacteria   B) 60 bacteria   C) 500 bacteria   D) 12 bacteria

Answer: A
Objective: (19.3) Solve problems modeled by exponential equations.

1) A
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