

Name \_\_\_\_\_

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

Solve the equation.

- 1)  $2(y + 8) = 3(y - 8)$  1) \_\_\_\_\_  
 A) -8 B) -40 C) 40 D) 8
- 2)  $4x + 5(-2x - 5) = -23 - 8x$  2) \_\_\_\_\_  
 A) -24 B)  $\frac{24}{7}$  C) -1 D) 1
- 3)  $\frac{2x}{5} - \frac{x}{3} = 4$  3) \_\_\_\_\_  
 A) -60 B) -120 C) 60 D) 120
- 4)  $\frac{5}{6}x + \frac{4}{3} = \frac{2}{3}x$  4) \_\_\_\_\_  
 A) 8 B) -8 C) -12 D) 12
- 5)  $2(x + 5) = (2x + 10)$  5) \_\_\_\_\_  
 A) 20 B) 0  
 C) all real numbers D) no solution
- 6)  $9x + 5 - 9x - 5 = 6x - 6x - 3$  6) \_\_\_\_\_  
 A) -288 B) 0  
 C) all real numbers D) no solution

Solve.

- 7) Three times the sum of some number and 2 is equal to 5 times the number minus 8. 7) \_\_\_\_\_  
 A) 14 B) 7 C) -7 D) -14
- 8) A 7-ft. board is cut into 2 pieces so that one piece is 3 feet longer than 3 times the shorter piece. If the shorter piece is  $x$  feet long, find the lengths of both pieces. 8) \_\_\_\_\_  
 A) shorter piece: 18 ft; longer piece: 21 ft B) shorter piece: 9 ft; longer piece: 24 ft  
 C) shorter piece: 3.5 ft; longer piece: 21 ft D) shorter piece: 1 ft; longer piece: 6 ft
- 9) If the length of a rectangular parking lot is 20 meters less than twice its width, and the perimeter is 404 meters, find the width of the parking lot. 9) \_\_\_\_\_  
 A) 74 meters B) 20 meters C) 128 meters D) 202 meters

10) Solve the given equation for T.  $A = P + PRT$

A)  $T = \frac{P - A}{PR}$

B)  $T = \frac{A}{R}$

C)  $T = \frac{A - P}{PR}$

D)  $T = \frac{PR}{A - P}$

10) \_\_\_\_\_

11) Solve the given equation for L.  $P = 2L + 2W$

A)  $L = \frac{P - W}{2}$

B)  $L = P - 2W$

C)  $L = \frac{P - 2W}{2}$

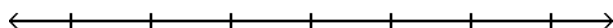
D)  $L = P - W$

11) \_\_\_\_\_

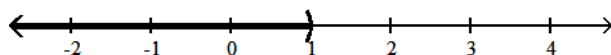
Solve the inequality. Graph the solution set and write it in interval notation.

12)  $21x + 9 > 3(6x + 4)$

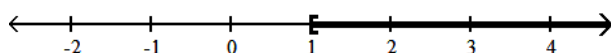
12) \_\_\_\_\_



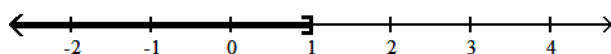
A)  $(-\infty, 1)$



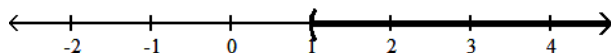
B)  $[1, \infty)$



C)  $(-\infty, 1]$

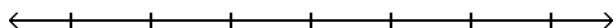


D)  $(1, \infty)$



13)  $-16x - 32 \leq -4(3x + 3)$

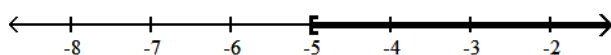
13) \_\_\_\_\_



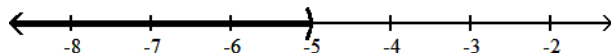
A)  $(-5, \infty)$



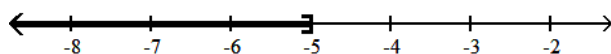
B)  $[-5, \infty)$



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



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



14) A high school is planning a graduation party for the senior class at the Civic Center. They may spend at most \$7000 for the party. If the Civic Center charges a \$300 cleanup fee plus \$18 per person, find the greatest number of people that they can invite and still stay within their budget.

14) \_\_\_\_\_

A) 372 people

B) 373 people

C) 300 people

D) 18 people

15) When making a long distance call from a certain pay phone, the first three minutes of a call cost \$2.65. After that, each additional minute or portion of a minute of that call costs \$0.30. Use an inequality to find the maximum number of minutes one can call long distance for \$6.85.

15) \_\_\_\_\_

- A) at most 3 minutes
- C) at most 23 minutes

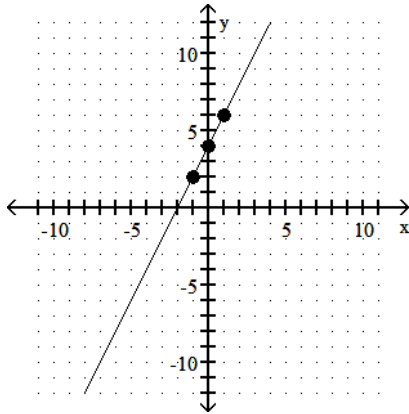
- B) at most 14 minutes
- D) at most 17 minutes

Graph the equation.

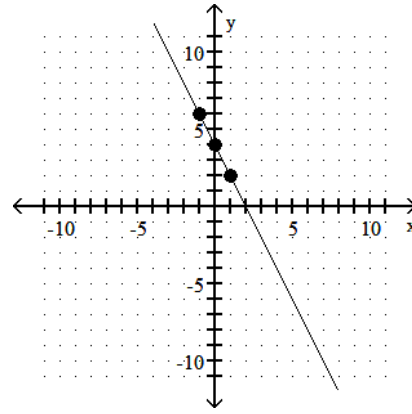
16)  $y = 2x + 4$

16) \_\_\_\_\_

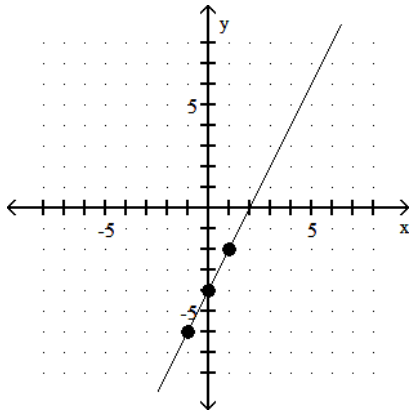
A)



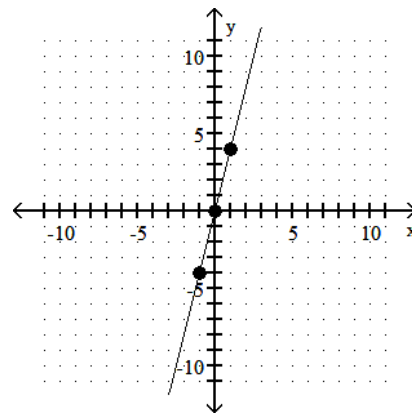
B)



C)



D)

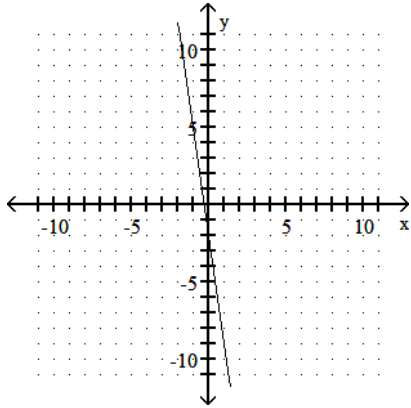


Graph the linear equation.

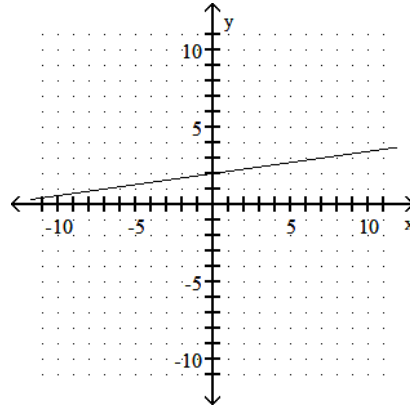
17)  $-7x = y - 2$

17) \_\_\_\_\_

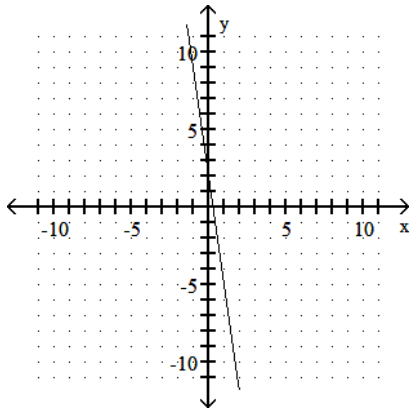
A)



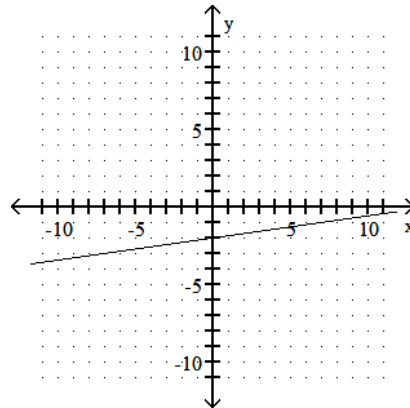
B)



C)

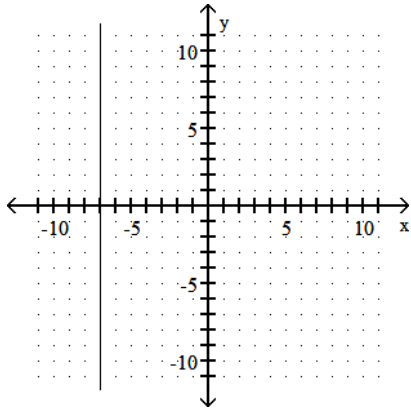


D)

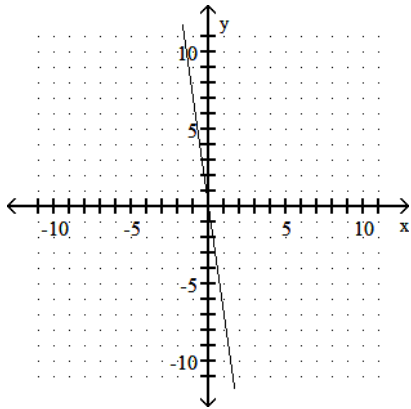


18)  $y = -7$

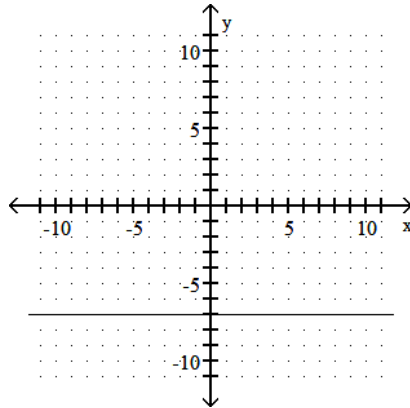
A)



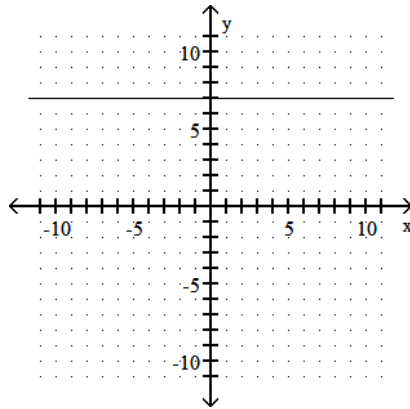
C)



B)



D)

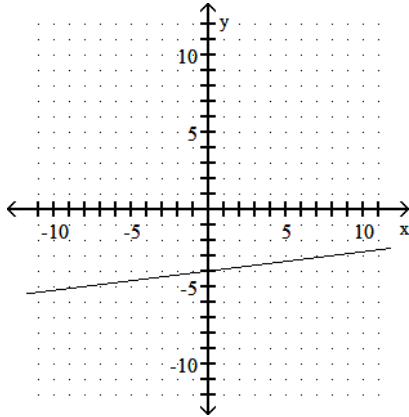


18) \_\_\_\_\_

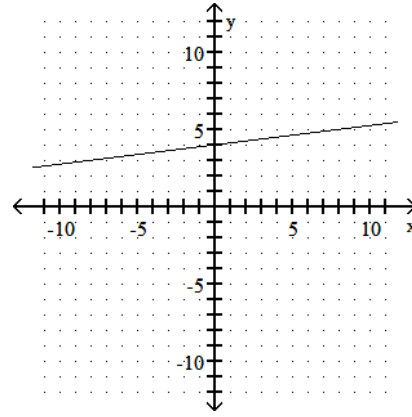
19)  $y = \frac{1}{8}x + 4$

19) \_\_\_\_\_

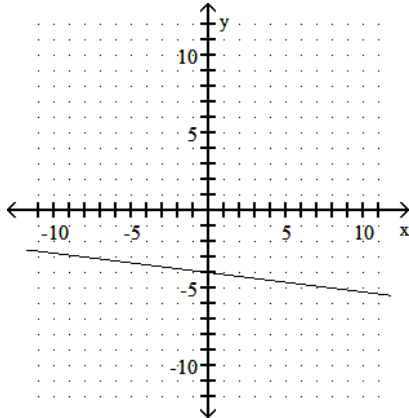
A)



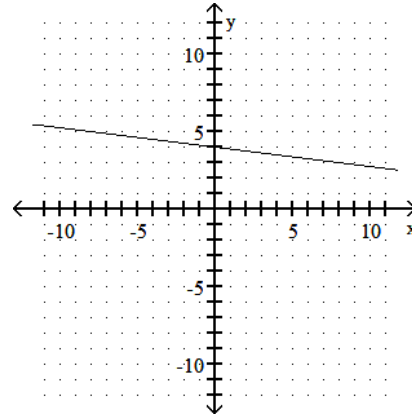
B)



C)



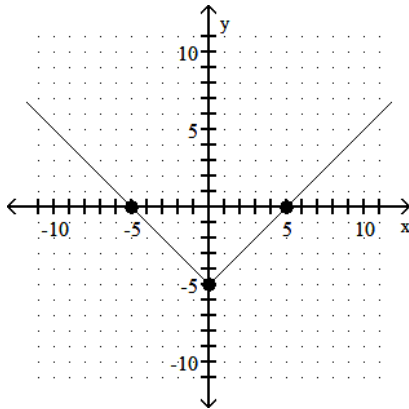
D)



Identify the intercepts.

20)

20) \_\_\_\_\_



A) (5, 0), (-5, 0)

B) (5, 0), (-5, 0), (0, -5)

C) (0, -5)

D) (5, 0), (-5, 0), (0, 0)

21) Find the x- and y- intercepts for the graph of the following linear equation  $2x - 3y = 12$

21) \_\_\_\_\_

A) x-intercept: 6; y-intercept: -4

B) x-intercept: 4; y-intercept: 6

C) x-intercept: -6; y-intercept: 4

D) x-intercept: 4; y-intercept: -6

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

22)  $(-6, 9)$  and  $(-1, 6)$

A)  $\frac{3}{5}$

B)  $-\frac{15}{7}$

C)  $-\frac{5}{3}$

D)  $-\frac{3}{5}$

22) \_\_\_\_\_

23)  $(8, 5)$  and  $(6, 9)$

A)  $-2$

B)  $1$

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

D)  $2$

23) \_\_\_\_\_

24)  $(6, -2)$  and  $(6, 4)$

A)  $0$

B)  $\frac{1}{6}$

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

D) undefined

24) \_\_\_\_\_

25)  $(8, 3)$  and  $(-5, 3)$

A)  $2$

B)  $0$

C)  $\frac{6}{13}$

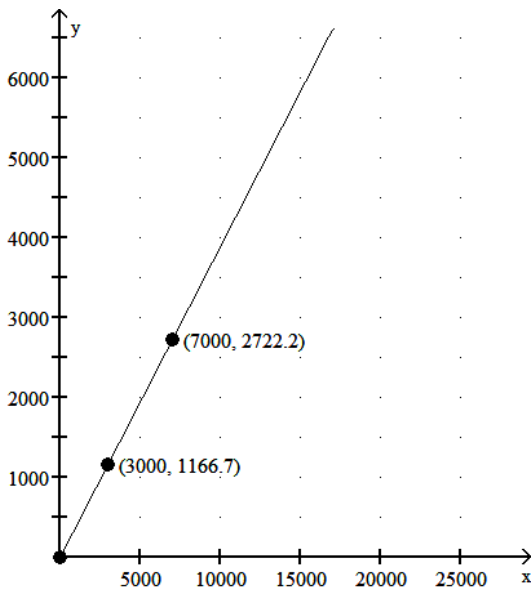
D) undefined

25) \_\_\_\_\_

Determine the rate of change.

26) The graph shows the total cost  $y$  (in dollars) of owning and operating a mini-van where  $x$  is the number of miles driven.

26) \_\_\_\_\_



A) \$2.57 per mile

B) \$25.00 per mile

C) \$0.39 per mile

D) cannot be determined

Find the slope of the line.

27)  $8x - 5y = 40$

A)  $m = \frac{5}{8}$

B)  $m = \frac{8}{5}$

C)  $m = 8$

D)  $m = -\frac{8}{5}$

27) \_\_\_\_\_

28)  $x + 6y = 1$

A)  $m = 1$

B)  $m = -\frac{1}{6}$

C)  $m = -6$

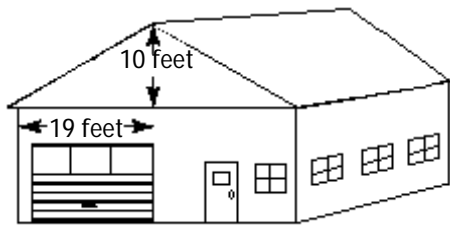
D)  $m = \frac{1}{6}$

28) \_\_\_\_\_

Solve.

29) The pitch of a roof is its slope. Find the pitch of the roof shown.

29) \_\_\_\_\_



A)  $\frac{10}{19}$

B) 190

C)  $\frac{5}{19}$

D)  $\frac{19}{10}$

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

30)  $m = -8, b = -2$

A)  $y = 8x + 2$

B)  $y = 2x + 8$

C)  $y = -2x - 8$

D)  $y = -8x - 2$

30) \_\_\_\_\_

31)  $m = \frac{2}{3}, b = 1$

A)  $y = -\frac{2}{3}x - 1$

B)  $y = \frac{2}{3}x - 1$

C)  $y = -\frac{2}{3}x + 1$

D)  $y = \frac{2}{3}x + 1$

31) \_\_\_\_\_

Find an equation of the line.

32) Horizontal line through  $(\frac{13}{5}, 0)$

A)  $y = \frac{13}{5}x$

B)  $y = 0$

C)  $x = \frac{13}{5}$

D)  $y = \frac{13}{5}$

32) \_\_\_\_\_

33) Vertical line through  $(7, 10)$

A)  $x = 10$

B)  $y = 10$

C)  $y = 7$

D)  $x = 7$

33) \_\_\_\_\_

34) Find the equation of the line that passes through  $(-3, 7)$  and  $(-3, 2)$ .

A)  $x = -3$

B)  $x = 7$

C)  $y = 2$

D)  $y = -3x + 7$

34) \_\_\_\_\_

Find the domain and the range of the relation.

35)  $\{(6, 4), (-6, 0), (-5, -5), (11, -6)\}$

A) domain:  $\{-6, -5, 6, 11\}$ ; range:  $\{0, 4\}$

B) domain:  $\{-6, 0, 4, 6\}$ ; range:  $\{-6, -5, 11\}$

C) domain:  $\{-6, -5, 6, 11\}$ ; range:  $\{-6, -5, 0, 4\}$

D) domain:  $\{-5, 0, 6, 11\}$ ; range:  $\{-6, -5, 4, 11\}$

35) \_\_\_\_\_

Determine whether the relation is also a function.

36)  $\{(-3, -8), (2, -4), (4, -2), (7, -6), (11, -8)\}$

A) yes

B) no

36) \_\_\_\_\_



37)  $\{(-5, -7), (-2, 1), (4, 3), (4, 2)\}$

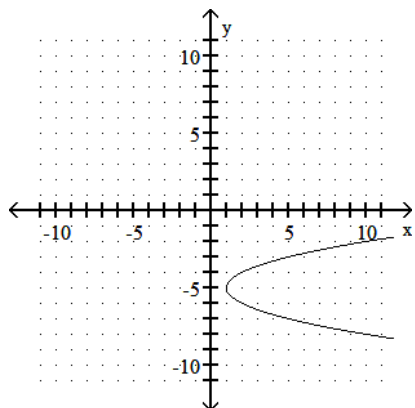
A) yes

B) no

37) \_\_\_\_\_

Determine whether the graph is the graph of a function.

38)



A) yes

B) no

38) \_\_\_\_\_

Evaluate the function.

39) Find  $f(-3)$  when  $f(x) = 3x^2 + 3x - 6$ .

A) 27

B) 24

C) 30

D) 12

39) \_\_\_\_\_

40) Find  $f(7)$  when  $f(x) = 9x - 9$

A) 0

B) 72

C) 54

D) 55

40) \_\_\_\_\_

Evaluate the expression with the given replacement values.

41)  $-7x^3y$ ;  $x = 2$  and  $y = -2$

A) 56

B) -112

C) 84

D) 112

41) \_\_\_\_\_

Multiply.

42)  $7x^3(-2x^2)$

A)  $-14x^6$

B)  $-14x^5$

C)  $14x^5$

D)  $14x^6$

42) \_\_\_\_\_

43)  $6x^2(-2x^2 + 2x + 6)$

A)  $4x^4 + 8x + 12$

C)  $-12x^4 + 12x + 36$

B)  $-12x^4 + 12x^3 + 36x^2$

D)  $-12x^4 + 12x^2 + 36$

43) \_\_\_\_\_

44)  $-5x(-8x^2 + 2x - 3)$

A)  $40x^3 - 10x^2 + 15$

C)  $40x^3 - 10x^2 + 15x$

B)  $40x^2 - 10x + 15$

D)  $40x^3 + 2x - 3$

44) \_\_\_\_\_

45)  $(9z + 11)^2$

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

C)  $9z^2 + 121$

B)  $9z^2 + 198z + 121$

D)  $81z^2 + 121$

45) \_\_\_\_\_

46)  $(x - 4)(x - 6)$

A)  $x^2 - 10x + 24$

B)  $2x^2 - 24$

C)  $2x + 24$

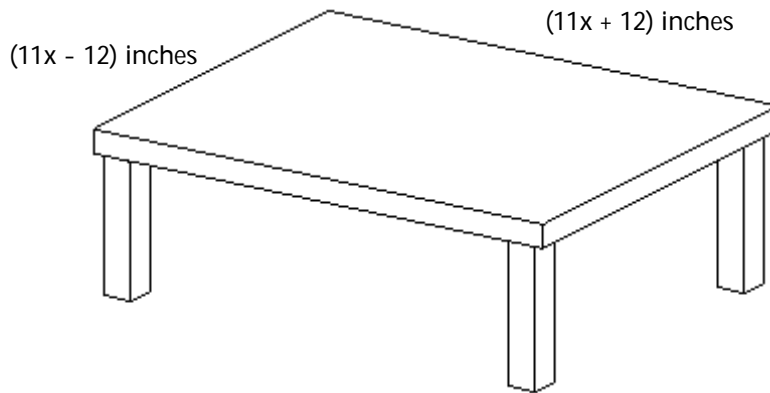
D)  $x^2 + 10x - 24$

46) \_\_\_\_\_

Solve.

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

47) \_\_\_\_\_



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

B)  $(121x^2 - 264x - 144)$  sq in.

C)  $(x^2 - 144)$  sq in.

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

For questions 48-52, Simplify the expression. Write result using positive exponents only.

48)  $\left(\frac{2x^3}{y^2}\right)^3$

48) \_\_\_\_\_

A)  $\frac{2x^9}{y^6}$

B)  $\frac{8x^9}{y^6}$

C)  $\frac{8x^9}{y^2}$

D)  $\frac{9x^6}{y^5}$

49)  $(-4xy)^3$

49) \_\_\_\_\_

A)  $-64xy$

B)  $-12xy$

C)  $-64x^3y^3$

D)  $-12x^3y^3$

50)  $\frac{45m^3n^7}{9m^2n^5}$

50) \_\_\_\_\_

A)  $45mn^2$

B)  $5n^2$

C)  $5m^5n^{12}$

D)  $5mn^2$

51)  $\left(\frac{xy^6}{x^5y}\right)^{-2}$

51) \_\_\_\_\_

A)  $\frac{1}{x^{12}y^{14}}$

B)  $\frac{x^8}{y^{10}}$

C)  $\frac{1}{x^7y^{13}}$

D)  $\frac{y^{10}}{x^8}$

52)  $\frac{-7ym^2n}{-2ym^5n}$

52) \_\_\_\_\_

A)  $\frac{7}{2m^3}$

B)  $\frac{5}{m^3}$

C)  $\frac{5y^2n^2}{m^3}$

D)  $\frac{1}{5m^3}$

Perform the division.

53)  $\frac{24x^4 - 32x^3 + 64x^2}{8x^3}$

53) \_\_\_\_\_

A)  $3x - 32x^3 + \frac{8}{x}$

B)  $3x - 4 + \frac{8}{x}$

C)  $11x - 4$

D)  $3x - 4$

54)  $\frac{21x^2 + 9x - 11}{3x}$  54) \_\_\_\_\_

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

For questions 55-61, factor the polynomial completely. If the polynomial cannot be factored, write "prime".

55)  $20x^4y + 36xy^3$  55) \_\_\_\_\_

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

56)  $-27y^3 + 12y$  56) \_\_\_\_\_

A)  $-3(9y^3 + 4y)$       B)  $-3y(3y+2)(3y-2)$   
 C)  $-3y^2(9y - 4)$       D)  $-3y(9y^2 + 4)$

57)  $x^3 + 3x^2 + x + 3$  57) \_\_\_\_\_

A)  $(x^2 + 1)(3x + 3)$       B)  $(x^2 + 1)(x + 3)$       C)  $(3x^2 + 3)(x + 1)$       D)  $(x^2 + 3)(x + 1)$

58)  $6x^2 - 10x + 15x - 25$  58) \_\_\_\_\_

A)  $(6x - 5)(x + 5)$       B)  $(6x + 5)(x - 5)$       C)  $(2x + 5)(3x - 5)$       D)  $(2x - 5)(3x + 5)$

59)  $4x^2 - 5x + 4$  59) \_\_\_\_\_

A) prime      B)  $(4x - 1)(x - 4)$       C)  $(2x - 4)(2x - 1)$       D)  $(4x - 4)(x - 1)$

60)  $2x^3 - 2x^2 - 112x$  60) \_\_\_\_\_

A)  $2(x^2 + 1)(x - 56)$       B)  $2x(x + 8)(x - 7)$       C)  $2x(x + 7)(x - 8)$       D) prime

61)  $5x^2 + 19x - 4$  61) \_\_\_\_\_

A)  $(5x + 4)(x - 1)$       B)  $(5x - 4)(x + 1)$       C)  $(5x + 1)(x - 4)$       D)  $(5x - 1)(x + 4)$

For questions 62-65, solve the equation.

62)  $x^2 - x = 72$  62) \_\_\_\_\_

A) 8, 9      B) -8, -9      C) -8, 9      D) 1, 72

Solve the equation.

63)  $x^2 + 2x = 0$  63) \_\_\_\_\_

A) 0, -2      B) 2      C) 0, 2      D) -2

64)  $x(5x + 8) = 4$  64) \_\_\_\_\_

A)  $0, \frac{8}{5}$       B)  $\frac{5}{2}, 2$       C)  $\frac{2}{5}, -2$       D)  $0, -\frac{8}{5}$

65)  $(x + 6)(x + 1) = 24$  65) \_\_\_\_\_

A) -2, 9      B) 1, 6      C) -6, -1      D) -9, 2

Solve.

66) An object is dropped from the top of a 64-foot building. The height  $h$  of the object after  $t$  seconds is given by the quadratic equation  $h = -16t^2 + 64$ . When will the object hit the ground? 66) \_\_\_\_\_

A) 2 sec      B) 160 sec      C) -2 sec      D) 4 sec

Find the domain of the rational expression.

$$67) f(x) = \frac{5x}{4-x}$$

67) \_\_\_\_\_

A) All real numbers

B) All real numbers except -4

C) All real numbers except 0

D) All real numbers except 4

Solve the problem.

68) A publishing company estimates the revenue from the sale of a popular book by the rational function  $R(x) = \frac{960x^2}{x^2 + 7}$  where  $x$  is the number of years since publication and  $R(x)$  is the total

68) \_\_\_\_\_

revenue in millions of dollars. Find the total revenue at the end of the first year.

A) \$90 million

B) \$120 million

C) \$180 million

D) \$190 million

For questions 69-72, perform the indicated operation and simplify.

$$69) \frac{2x^2}{5} \div \frac{x^3}{25}$$

69) \_\_\_\_\_

A)  $\frac{10x^2}{x^3}$

B)  $\frac{50x^2}{5x^3}$

C)  $\frac{10}{x}$

D)  $\frac{x}{10}$

$$70) \frac{x^2 - 18x + 81}{45 - 5x} \div \frac{3x - 27}{15}$$

70) \_\_\_\_\_

A) 15

B)  $\frac{x^2 - 18x + 81}{(x - 9)^2}$

C) -1

D)  $\frac{(x - 9)^2}{25}$

$$71) \frac{x + 6}{3 - x} \div \frac{x^2 - 4x - 12}{x^2 - 9x + 18}$$

71) \_\_\_\_\_

A)  $-\frac{(x + 6)(x - 6)}{(x - 3)^2}$

B)  $-\frac{x + 6}{x + 2}$

C)  $-\frac{x - 6}{x + 2}$

D)  $\frac{x - 6}{x + 2}$

$$72) \frac{(x + 5)^2}{x - 5} \div \frac{x^2 - 25}{5x - 25}$$

72) \_\_\_\_\_

A)  $\frac{(x + 5)^2}{(x - 5)^2}$

B)  $\frac{5(x + 5)}{x - 5}$

C)  $\frac{(x + 5)^3}{5(x - 5)}$

D)  $\frac{10(x^2 + 25)}{x^2 - 25}$

For questions 73-74, solve the equation and check the proposed solutions.

$$73) \frac{5}{x} = 3 - \frac{1}{x}$$

73) \_\_\_\_\_

A)  $\frac{5}{3}$

B) 2

C) 1

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

$$74) \frac{3}{4x} + \frac{1}{3} = \frac{2}{x}$$

74) \_\_\_\_\_

A) -4

B)  $\frac{15}{4}$

C) 4

D) 15

For questions 75-76, simplify the radical expression. Assume that all variables represent positive real numbers.

75)  $\sqrt{150x^2y}$  75) \_\_\_\_\_  
A)  $5x^2\sqrt{6y}$  B)  $5xy\sqrt{6}$  C)  $5xy^2\sqrt{6}$  D)  $5x\sqrt{6y}$

76)  $\sqrt[3]{-8x^4y^5}$  76) \_\_\_\_\_  
A)  $2xy\sqrt{xy^2}$  B)  $-2xy\sqrt[3]{xy^2}$  C)  $2xy\sqrt[3]{xy}$  D)  $3xy\sqrt[3]{xy^2}$

For questions 77-78, solve and check each proposed solution.

77)  $\sqrt{5x+2} - 3 = 0$  77) \_\_\_\_\_  
A)  $\frac{5}{7}$  B)  $\emptyset$  C)  $\frac{7}{5}$  D) 35

Solve.

78)  $\sqrt{x-1} = 2$  78) \_\_\_\_\_  
A) 3 B) 5 C) 4 D) 9

For questions 79-80, simplify.

79)  $\sqrt{-25}$  79) \_\_\_\_\_  
A) 5i B)  $-i\sqrt{5}$  C)  $\pm 5$  D)  $-5i$

80)  $\sqrt{-200}$  80) \_\_\_\_\_  
A)  $10\sqrt{2}$  B)  $-10i\sqrt{2}$  C)  $-10\sqrt{2}$  D)  $10i\sqrt{2}$

Solve.

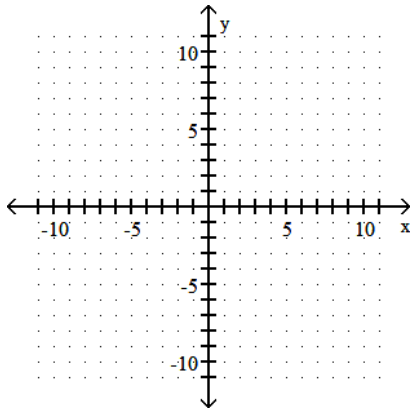
81) A ball is thrown downward with an initial velocity of 14 meters per second from a cliff that is 30 meters high. The height of the ball is given by the quadratic equation  $h = -4.9t^2 - 14t + 30$  where  $h$  is in meters and  $t$  is the time in seconds since the ball was thrown. Find the time it takes the ball to hit the ground. Round your answer to the nearest tenth of a second. 81) \_\_\_\_\_  
A) 2.4 sec B) 1.4 sec C) 1.3 sec D) 1.5 sec

82) Sarah's rectangular pig pen for her pot belly pig must have an area of 200 square feet. Also, the length must be 6 feet longer than the width. Find the width of the pen. Round your answer to the nearest tenth of a foot, if necessary. 82) \_\_\_\_\_  
A) 11.5 feet B) 14 feet C) 17 feet D) 20 feet

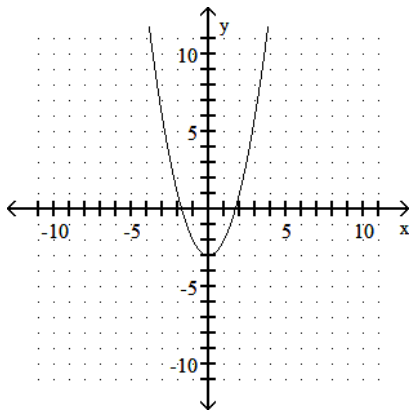
Sketch the graph of the quadratic function by finding the vertex, intercepts, and determining if the graph opens upward or downward.

83)  $f(x) = x^2 - 3$

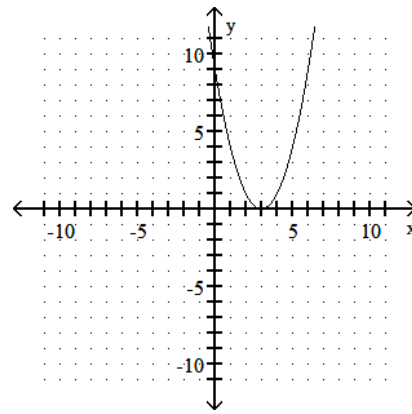
83) \_\_\_\_\_



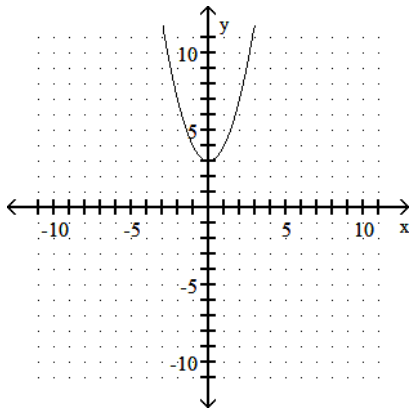
A)



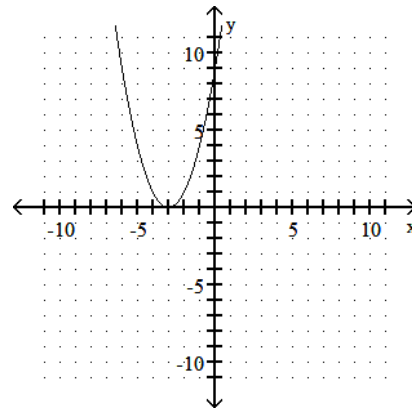
B)



C)



D)

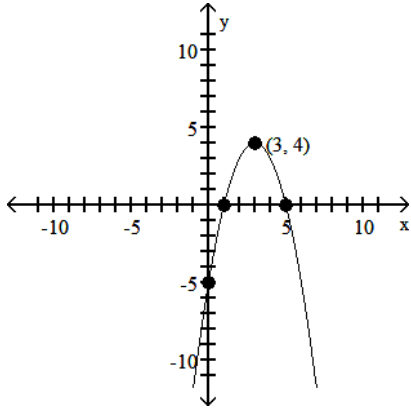


Match the function with its graph.

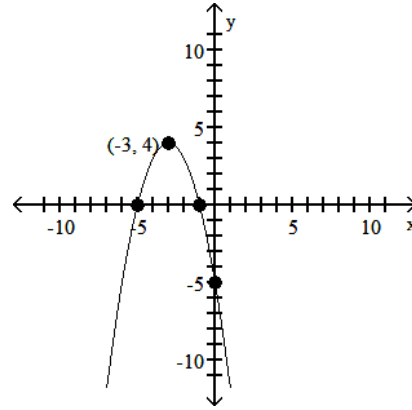
84)  $f(x) = -x^2 - 6x - 5$

84) \_\_\_\_\_

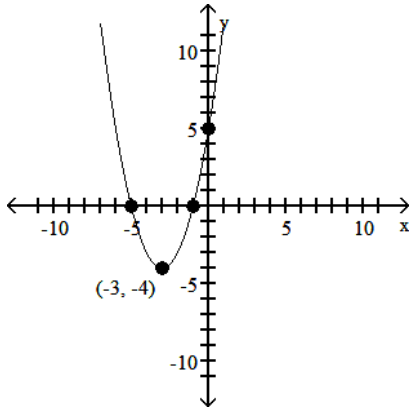
A)



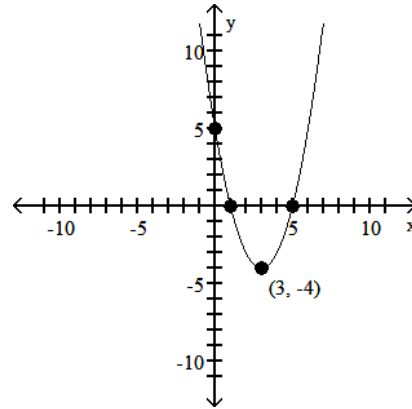
B)



C)



D)



Answer Key

Testname: MATH 0015 REVIEW SUMMER2018

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



Answer Key

Testname: MATH 0015 REVIEW SUMMER2018

- 52) A
- 53) B
- 54) C
- 55) A
- 56) B
- 57) B
- 58) C
- 59) A
- 60) C
- 61) D
- 62) C
- 63) A
- 64) C
- 65) D
- 66) D
- 67) D
- 68) B
- 69) C
- 70) C
- 71) B
- 72) B
- 73) B
- 74) B
- 75) D
- 76) B
- 77) C
- 78) B
- 79) A
- 80) D
- 81) B
- 82) A
- 83) A
- 84) B