

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

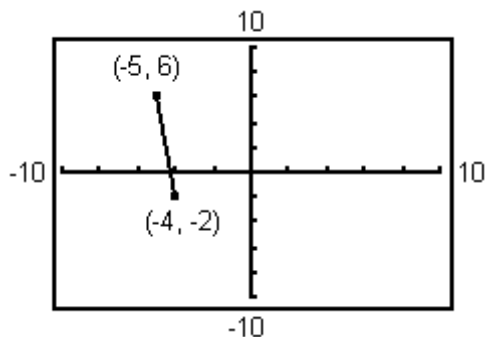
Find the distance $d(P_1, P_2)$ between the points P_1 and P_2 .

1) $P_1 = (-1, -2); P_2 = (6, -3)$ 1) _____

2) $P_1 = (5, 5); P_2 = (5, 1)$ 2) _____

Solve the problem.

3) Find the length of the line segment. 3) _____



Find the midpoint of the line segment joining the points P_1 and P_2 .

4) $P_1 = (9x, 2); P_2 = (10x, 9)$ 4) _____

5) $P_1 = (-1, -7); P_2 = (3, -4)$ 5) _____

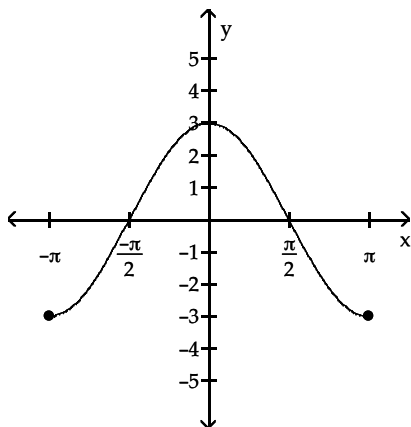
6) $P_1 = (0.2, 0.1); P_2 = (-1.3, 2.3)$ 6) _____

List the intercepts for the graph of the equation.

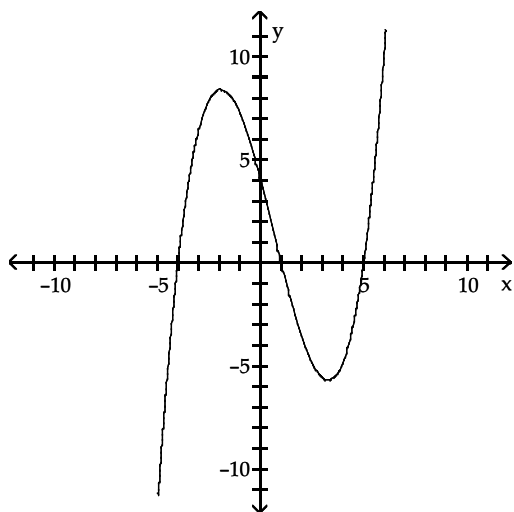
7) $y^2 - x - 1 = 0$ 7) _____

List the intercepts of the graph.

8) 8) _____



9)



9)

List the intercepts for the graph of the equation.

10) $x^2 = y$

10) _____

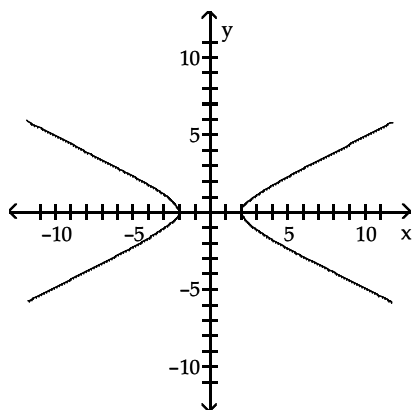
11) $9x^2 + 16y^2 = 144$

11) _____

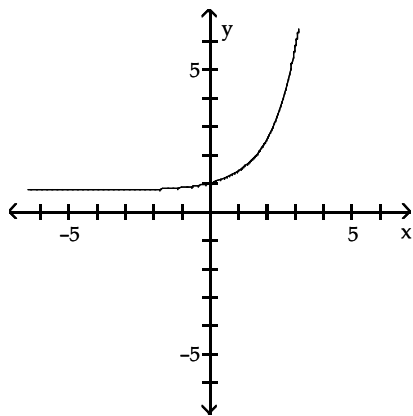
Determine whether the graph is symmetric with respect to the x-axis, the y-axis, and/or the origin.

12)

12)

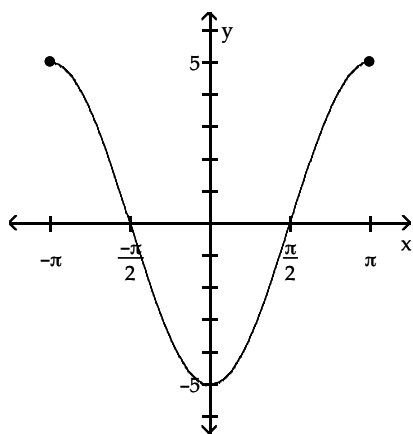


13)



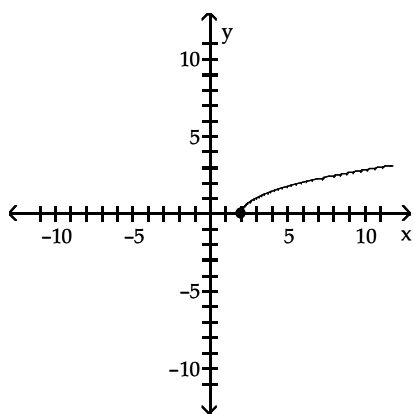
13)

14)



14)

15)



15)

Find the center (h, k) and radius r of the circle. Graph the circle.

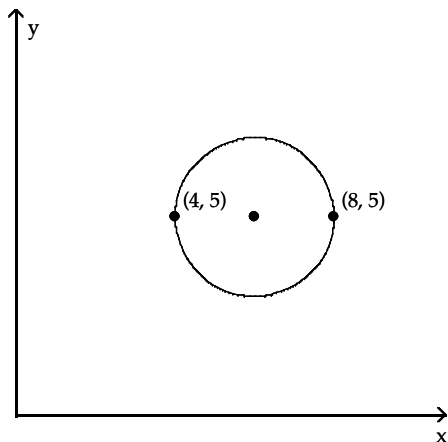
16) $x^2 + y^2 - 2x - 10y + 17 = 0$

16) _____

Write the standard form of the equation of the circle.

17)

17)



Write the standard form of the equation of the circle with radius r and center (h, k) .

18) $r = 7$; $(h, k) = (-1, -4)$

18) _____

19) $r = \sqrt{13}$; $(h, k) = (-10, -8)$

19) _____

Graph the circle with radius r and center (h, k) .

20) $r = 5$; $(h, k) = (0, 2)$

20) _____

Graph the equation.

21) $x^2 + (y - 5)^2 = 25$

21) _____

Find the center (h, k) and radius r of the circle with the given equation.

22) $4x^2 + 4y^2 - 12x + 16y - 5 = 0$

22) _____

Find the general form of the equation of the circle.

23) Center at the point $(-4, -3)$; containing the point $(-3, 3)$

23) _____

Find the center (h, k) and radius r of the circle with the given equation.

24) $x^2 + y^2 + 8x + 12y = -3$

24) _____

Solve the problem.

25) Find an equation of the vertical line containing the point $(7, 2)$.

25) _____

26) Find an equation of the line with slope undefined and containing the point $(-\frac{4}{9}, 7)$.

26) _____

Find the slope-intercept form of the equation of the line with the given properties.

27) horizontal; containing the point $(-1, 2)$

27) _____

28) slope = 4; containing the point $(-4, -10)$

28) _____

Write the equation in slope-intercept form.

29) $16x + 9y = 8$ 29) _____

30) $5x + 7y = 10x + 9$ 30) _____

Find the slope and y-intercept of the line.

31) $9x - 10y = 90$ 31) _____

Find the general form of the equation for the line with the given properties.

32) slope = $-\frac{6}{7}$; containing the point (4, 5) 32) _____

Find an equation for the line with the given properties.

33) Parallel to the line $x + 2y = 4$; containing the point (0, 0) 33) _____

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

34) Parallel to the line $y = -4x - 1$; containing the point (2, 6) 34) _____
A) $y = 4x - 14$ B) $y = 4x - 26$ C) $y = -4x + 14$ D) $y = -4x + 26$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

35) Perpendicular to the line $y = 2x - 1$; containing the point (-2, 2) 35) _____

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

Write a general formula to describe the variation.

36) A varies directly with t^2 ; $A = 180$ when $t = 6$ 36) _____
A) $A = \frac{5}{t^2}$ B) $A = \frac{30}{t^2}$ C) $A = 30t^2$ D) $A = 5t^2$

37) The volume V of a right circular cone varies directly with the square of its base radius r and its height h . The constant of proportionality is $\frac{1}{3}\pi$. 37) _____

A) $V = \frac{1}{3}\pi rh$ B) $V = \frac{1}{3}\pi r^2 h^2$ C) $V = \frac{1}{3}r^2 h$ D) $V = \frac{1}{3}\pi r^2 h$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

38) On planet X, an object falls 18 feet in 3 seconds. Knowing the distance it falls varies directly with the square of the time of fall, how long does it take an object to fall 100 feet? Round to three decimal places, if necessary. 38) _____

Write a general formula to describe the variation.

39) A varies inversely with x^2 ; $A = 4$ when $x = 2$ 39) _____

Solve the problem.

- 40) The amount of time Jesse works on his homework each day varies inversely with the amount of time he spends watching TV that day. If he spends 3 hours working on homework when he watches 0.5 hours of TV, how much time does he spend on homework when he watches 2.5 hours of TV. 40) _____

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

Write a general formula to describe the variation.

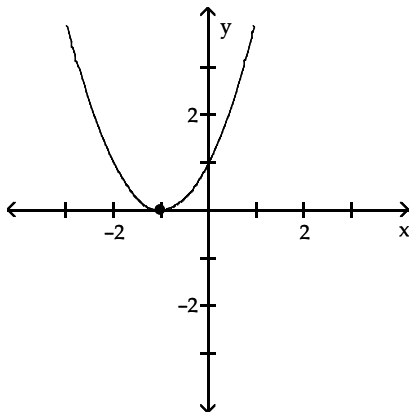
- 41) z varies jointly as the cube root of x and the cube of y ; $z = 2$ when $x = 125$ and $y = 2$. 41) _____
- A) $z = \frac{1}{20} \sqrt[3]{xy^3}$ B) $z = \frac{5}{16} \frac{\sqrt[3]{x}}{y^3}$ C) $z = 20 \sqrt[3]{xy^3}$ D) $z = \frac{16}{5} \frac{\sqrt[3]{x}}{y^3}$

Solve the problem.

- 42) The time in hours it takes a satellite to complete an orbit around the earth varies directly as the radius of the orbit (from the center of the earth) and inversely as the orbital velocity. If a satellite completes an orbit 670 miles above the earth in 19 hours at a velocity of 21,000 mph, how long would it take a satellite to complete an orbit if it is at 1600 miles above the earth at a velocity of 24,000 mph? (Use 3960 miles as the radius of the earth.) 42) _____
- A) 5.75 hours B) 19.96 hours C) 199.64 hours D) 39.7 hours

Match the graph to one of the listed functions without using a graphing utility.

- 43) 43) _____



- A) $x^2 - 2x$ B) $x^2 - 2x + 1$ C) $x^2 + 2x + 1$ D) $x^2 + 2x$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the vertex and axis of symmetry of the graph of the function.

- 44) $f(x) = x^2 + 4x + 3$ 44) _____

Solve the problem.

- 45) Find the point-slope form of the equation of the line containing the points $(-3, -1)$ and $(1, -2)$. Use $(-3, -1)$ as the point (x_1, y_1) . 45) _____

Write a general formula to describe the variation.

- 46) The centrifugal force F of an object speeding around a circular course varies directly as the product of the object's mass m and the square of its velocity v and inversely as the radius of the turn r . 46) _____

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

47) $6x + 2y = 8$
 $24x + 8y = 33$

47) _____

Determine whether the relation represents a function. If it is a function, state the domain and range.

48) $\{(-1, 6), (0, 5), (5, -4), (6, -1)\}$

48) _____

Determine whether the equation is a function.

49) $y^2 = 3 - x^2$

49) _____

Solve the problem.

50) If $f(x) = 3x^3 + 7x^2 - x + C$ and $f(-2) = 1$, what is the value of C ?

50) _____

Find the domain of the function.

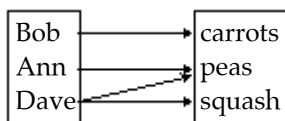
51) $f(x) = \sqrt{21 - x}$

51) _____

Determine whether the relation represents a function. If it is a function, state the domain and range.

52)

52) _____



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

Determine whether the equation is a function.

53) $y = \frac{1}{x}$

53) _____

A) function

B) not a function

54) $y = \pm \sqrt{1 - 3x}$

54) _____

A) function

B) not a function

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the value for the function.

55) Find $f(5)$ when $f(x) = \sqrt{x^2 + 6x}$.

55) _____

56) Find $f(-x)$ when $f(x) = \frac{x}{x^2 + 5}$.

56) _____

Solve the problem.

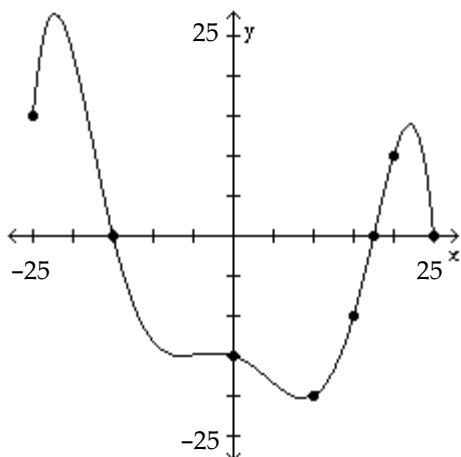
57) If $f(x) = \frac{x - 4A}{8x + 1}$ and $f(8) = -12$, what is the value of A ?

57) _____

The graph of a function f is given. Use the graph to answer the question.

58) For what numbers x is $f(x) = 0$?

58) _____



Graph the function by starting with the graph of the basic function and then using the techniques of shifting, compressing, stretching, and/or reflecting.

59) $f(x) = -3(x + 1)^2 - 2$

59) _____

Find the inverse. Determine whether the inverse represents a function.

60) $\{(-3, 4), (-1, 5), (0, 2), (2, 4), (5, 7)\}$

60) _____

Find the domain of the function.

61) $g(x) = \frac{2x}{x^2 - 49}$

61) _____

62) $\frac{x}{\sqrt{x-9}}$

62) _____

For the given functions f and g , find the requested function and state its domain.

63) $f(x) = 9x - 4$; $g(x) = 5x - 2$
Find $f - g$.

63) _____

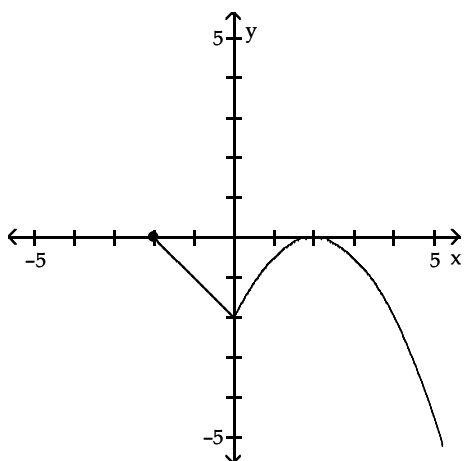
64) $f(x) = 5x + 1$; $g(x) = 4x - 3$
Find $\frac{f}{g}$.

64) _____

Determine whether the graph is that of a function. If it is, use the graph to find its domain and range, the intercepts, if any, and any symmetry with respect to the x -axis, the y -axis, or the origin.

65)

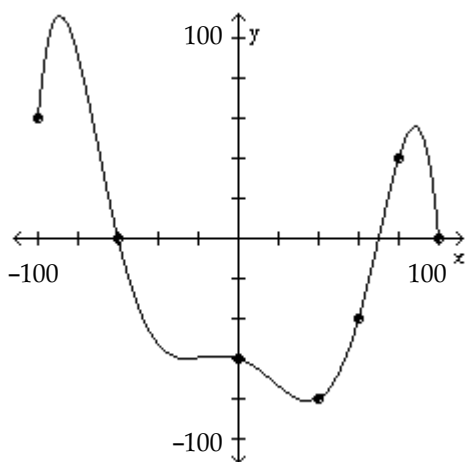
65)



The graph of a function f is given. Use the graph to answer the question.

66) Is $f(40)$ positive or negative?

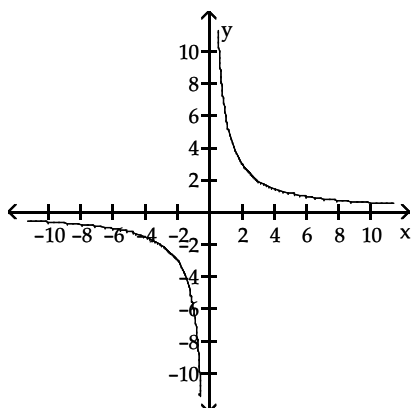
66) _____



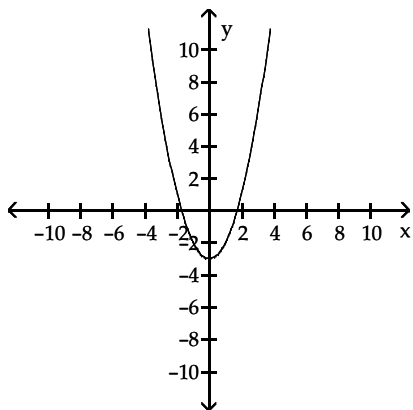
The graph of a function is given. Decide whether it is even, odd, or neither.

67)

67)



68)



68)

Determine algebraically whether the function is even, odd, or neither.

69) $f(x) = -9x^2 + 3$

69) _____

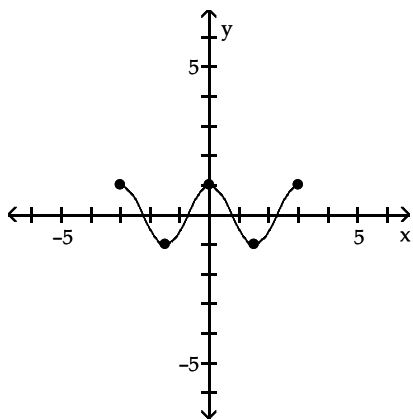
70) $f(x) = \sqrt[3]{x}$

70) _____

The graph of a function is given. Determine whether the function is increasing, decreasing, or constant on the given interval.

71) $(-3, -\frac{3}{2})$

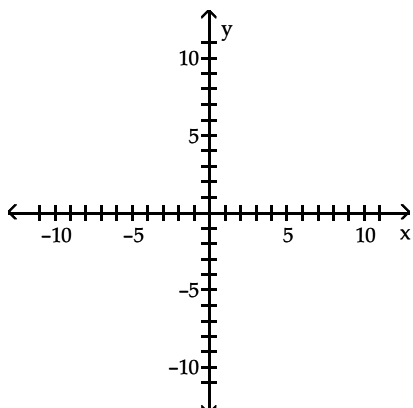
71)



Graph the function as a solid line or curve and its inverse as a dashed line or curve on the same axes.

72) $f(x) = x^3 + 1$

72)



Find the inverse function of f. State the domain and range of f.

73) $f(x) = \frac{3x-2}{x+5}$

73) _____

Determine whether the given function is exponential or not. If it is exponential, identify the value of the base a.

74)

x	H(x)
-1	5
0	9
1	13
2	17
3	21

74) _____

Use transformations to graph the function. Determine the domain, range, and vertical asymptote of the function.

75) Graph the function $f(x) = -1 + e^x$. Determine the domain, range, and horizontal asymptote.

75) _____

Solve the equation.

76) $4^{5-3x} = \frac{1}{256}$

76) _____

77) $9^{2x} \cdot 27^{(3-x)} = \frac{1}{9}$

77) _____

Change the exponential expression to an equivalent expression involving a logarithm.

78) $32^{1/5} = 2$

78) _____

Change the logarithmic expression to an equivalent expression involving an exponent.

79) $\log_b 8 = 3$

79) _____

Find the exact value of the logarithmic expression.

80) $\log_2 1$

80) _____

Find the domain of the function.

81) $f(x) = \ln(3-x)$

81) _____

Graph the function.

82) $f(x) = -4 \ln x$

82) _____

Solve the equation.

83) $\log_x \left(\frac{27}{64} \right) = 3$

83) _____

Use the properties of logarithms to find the exact value of the expression. Do not use a calculator.

84) $\log_{28} 4 + \log_{28} 7$

84) _____

85) $2 \ln e^{4.2}$

85) _____

Using the properties of logarithms, find the exact value of the expression. Do not use a calculator.

86) $\log_2 2^{46.6}$ 86) _____

Write as the sum and/or difference of logs. Express powers as factors.

87) $\log_{19} \frac{\sqrt[3]{14}}{q^2p}$ 87) _____

Express as a single logarithm.

88) $(\log_a t - \log_a s) + 4\log_a u$ 88) _____

Solve the equation.

89) $\log_6 (2x + 7) = \log_6 (2x + 4)$ 89) _____

90) $3^{(x-1)} = 18$ 90) _____

Solve the problem.

91) Meike earned \$1565 in tips while working a summer job at a coffee shop. She wants to use this money to take a trip to Europe next summer. If she places the money in an account which pays 6.5% compounded continuously, how much money will she have in nine months? 91) _____

Solve the problem. Round your answer to three decimals.

92) How long will it take for an investment to triple in value if it earns 5.25% compounded continuously? 92) _____

Solve the equation.

93) $\left(\frac{1}{4}\right)^x = 13$ 93) _____

Use the Change-of-Base Formula and a calculator to evaluate the logarithm. Round your answer to three decimal places.

94) $\log_{4.5} 3.3$ 94) _____

Use the properties of logarithms to find the exact value of the expression. Do not use a calculator.

95) $\log_6 26 \cdot \log_{26} 36$ 95) _____

Find the exact value of the logarithmic expression.

96) $\log_8 \frac{1}{512}$ 96) _____

97) $\log_{10} \sqrt{10}$ 97) _____

Approximate the value using a calculator. Express answer rounded to three decimal places.

98) $5^{\sqrt{5}}$ 98) _____

Decide whether or not the functions are inverses of each other.

99) $f(x) = 8 - 3x$; $g(x) = \frac{x}{3}(x - 8)$ 99) _____

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

For the given functions f and g , find the requested composite function value.

100) Given $f(x) = \frac{x-6}{x}$ and $g(x) = x^2 + 9$, find $(g \circ f)(-2)$. 100) _____

A) $\frac{145}{16}$

B) 13

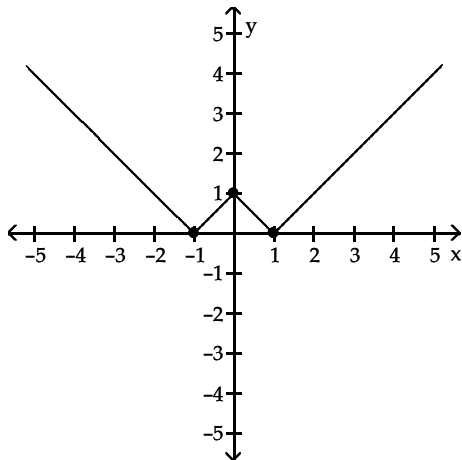
C) 25

D) $\frac{7}{13}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

The graph of a function f is given. Use the graph to answer the question.

101) Find the numbers, if any, at which f has a local maximum. What are the local maxima? 101) _____



For the function, find the average rate of change of f from 1 to x :

$$\frac{f(x) - f(1)}{x - 1}, x \neq 1$$

102) $f(x) = \frac{3}{x+2}$ 102) _____

Graph the function.

103) 103) _____

$$f(x) = \begin{cases} x + 4 & \text{if } x < 1 \\ -2 & \text{if } x \geq 1 \end{cases}$$

104) 104) _____

$$f(x) = \begin{cases} -x + 3 & \text{if } x < 2 \\ 2x - 3 & \text{if } x \geq 2 \end{cases}$$

Graph the function by starting with the graph of the basic function and then using the techniques of shifting, compressing, stretching, and/or reflecting.

105) $f(x) = (x+3)^3$ 105) _____

106) $f(x) = \sqrt{-x}$ 106) _____

Graph the function using its vertex, axis of symmetry, and intercepts.

107) $f(x) = x^2 - 2x + 1$

107) _____

Determine, without graphing, whether the given quadratic function has a maximum value or a minimum value and then find that value.

108) $f(x) = -x^2 + 2x - 8$

108) _____

Solve the problem.

109) A projectile is fired from a cliff 400 feet above the water at an inclination of 45° to the horizontal, with a muzzle velocity of 360 feet per second. The height h of the projectile

109) _____

above the water is given by $h(x) = \frac{-32x^2}{(360)^2} + x + 400$, where x is the horizontal distance of the projectile from the base of the cliff. Find the maximum height of the projectile.

State whether the function is a polynomial function or not. If it is, give its degree. If it is not, tell why not.

110) $f(x) = 9x^3 - 4x^2 - 8$

110) _____

111) $f(x) = 3 - \frac{2}{x^6}$

111) _____

Use transformations of the graph of $y = x^4$ or $y = x^5$ to graph the function.

112) $f(x) = 3 - (x - 4)^4$

112) _____

Form a polynomial whose zeros and degree are given.

113) Zeros: 2, multiplicity 2; -2, multiplicity 2; degree 4

113) _____

For the polynomial, list each real zero and its multiplicity. Determine whether the graph crosses or touches the x -axis at each x -intercept.

114) $f(x) = 3(x + 7)(x + 3)^2$

114) _____

Find the x - and y -intercepts of f .

115) $f(x) = (x + 6)(x - 5)(x + 5)$

115) _____

Find the domain of the rational function.

116) $h(x) = \frac{6x}{(x + 7)(x - 8)}$

116) _____

117) $h(x) = \frac{x + 5}{x^2 + 1}$

117) _____

Give the equation of the specified asymptote(s).

118) Vertical asymptote(s): $f(x) = \frac{3x + 10}{x^2 + 12x + 35}$

118) _____

119) Horizontal asymptote: $f(x) = \frac{x^4 - 1}{3x^5 + 3}$

119) _____

Find the indicated intercept(s) of the graph of the function.

120) x-intercepts of $f(x) = \frac{(x-6)(2x+7)}{x^2+5x-9}$ 120) _____

121) y-intercept of $f(x) = \frac{x^2-4}{x^2+2x-11}$ 121) _____

Give the equation of the specified asymptote(s).

122) Oblique asymptote: $f(x) = \frac{x^2+9x+9}{x+6}$ 122) _____

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

Solve the problem.

123) A can in the shape of a right circular cylinder is required to have a volume of 700 cubic centimeters. The top and bottom are made up of a material that costs 8¢ per square centimeter, while the sides are made of material that costs 5¢ per square centimeter. Which function below describes the total cost of the material as a function of the radius r of the cylinder? 123) _____

A) $C(r) = 0.16\pi r^2 + \frac{70}{r}$

B) $C(r) = 0.08\pi r^2 + \frac{140}{r}$

C) $C(r) = 0.08\pi r^2 + \frac{70}{r}$

D) $C(r) = 0.16\pi r^2 + \frac{140}{r}$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the domain of the composite function $f \circ g$.

124) $f(x) = \frac{6}{x+6}$; $g(x) = x+9$ 124) _____

For the given functions f and g , find the requested composite function value.

125) $f(x) = \sqrt{x+1}$; $g(x) = 5x$; Find $(f \circ g)(1)$. 125) _____

Decide whether or not the functions are inverses of each other.

126) $f(x) = 8-5x$; $g(x) = \frac{x}{5}(x-8)$ 126) _____

If the following defines a one-to-one function, find the inverse.

127) $f(x) = 6x+6$ 127) _____

Approximate the value using a calculator. Express answer rounded to three decimal places.

128) 4.2^π 128) _____

Graph the function as a solid line or curve and its inverse as a dashed line or curve on the same axes.

129) $f(x) = \sqrt{x+4}$ 129) _____

Solve the equation.

130) $\frac{x^2-3}{2} = 64$ 130) _____

Change the exponential expression to an equivalent expression involving a logarithm.

131) $e^x = 14$

131) _____

Find the exact value of the logarithmic expression.

132) $\log_4 \frac{1}{64}$

132) _____

Graph the function.

133) $y = \log_2 x$

133) _____

Using the properties of logarithms, find the exact value of the expression. Do not use a calculator.

134) $6^{\log_6 4.19}$

134) _____

Solve the equation.

135) Find all real solutions of the following equation.
 $\log_3 x + \log_3(x - 24) = 4$

135) _____

136) $4(x - 1) = 14$

136) _____

For the polynomial, list each real zero and its multiplicity. Determine whether the graph crosses or touches the x-axis at each x-intercept.

137) $f(x) = 4(x - 4)(x - 3)^2$

137) _____

Use the x-intercepts to find the intervals on which the graph of f is above and below the x-axis.

138) $f(x) = (x + \frac{1}{6})^4(x - 3)^5$

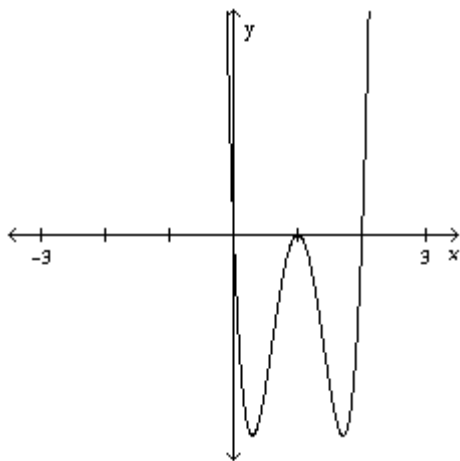
138) _____

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

Solve the problem.

139) Which of the following polynomial functions might have the graph shown in the illustration below?

139) _____



A) $f(x) = x(x - 2)(x - 1)^2$

B) $f(x) = x^2(x - 2)(x - 1)$

C) $f(x) = x(x - 2)^2(x - 1)$

D) $f(x) = x^2(x - 2)^2(x - 1)^2$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the domain of the rational function.

140) $h(x) = \frac{x+6}{x^2+16x}$ 140) _____

Give the equation of the specified asymptote(s).

141) Vertical asymptote(s): $f(x) = \frac{3x-7}{x^2-5x-14}$ 141) _____

142) Horizontal asymptote: $h(x) = \frac{7x^2-3x-7}{2x^2-7x+5}$ 142) _____

Solve the system of equations by elimination.

143) $\begin{cases} 6x+3y=51 \\ 2x-6y=38 \end{cases}$ 143) _____

Verify that the values of the variables listed are solutions of the system of equations.

144) $\begin{cases} 3x+y=-2 \\ 2x+3y=8 \end{cases}$
 $x=-2, y=4$ 144) _____

Solve the system of equations by elimination.

145) $\begin{cases} 5x-2y=-1 \\ x+4y=35 \end{cases}$ 145) _____

Solve using elimination.

146) $\begin{cases} 3x^2+2y^2=89 \\ x^2-2y^2=-21 \end{cases}$ 146) _____

147) $\begin{cases} 2x^2+y^2=17 \\ 3x^2-2y^2=-6 \end{cases}$ 147) _____

Graph the inequality.

148) $x-y > -5$ 148) _____

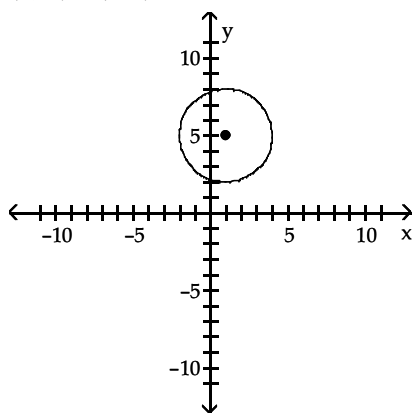
Graph the system of inequalities.

149) $\begin{cases} 2x+3y \leq 6 \\ x-y \leq 3 \end{cases}$ 149) _____

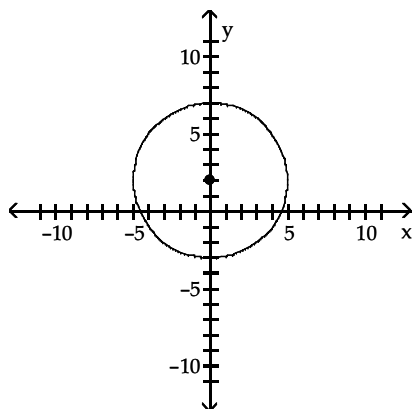
Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

- 1) $5\sqrt{2}$
- 2) 4
- 3) $\sqrt{65}$
- 4) $(\frac{19x}{2}, \frac{11}{2})$
- 5) $(1, -\frac{11}{2})$
- 6) $(-0.55, 1.2)$
- 7) $(0, -1), (-1, 0), (0, 1)$
- 8) $(-\frac{\pi}{2}, 0), (0, 3), (\frac{\pi}{2}, 0)$
- 9) $(-4, 0), (1, 0), (5, 0), (0, 4)$
- 10) $(0, 0)$
- 11) $(-4, 0), (0, -3), (0, 3), (4, 0)$
- 12) x-axis, y-axis, origin
- 13) none
- 14) y-axis
- 15) none
- 16) $(h, k) = (1, 5); r = 3$



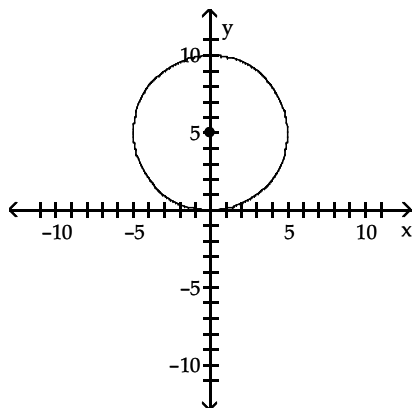
- 17) $(x - 6)^2 + (y - 5)^2 = 4$
- 18) $(x + 1)^2 + (y + 4)^2 = 49$
- 19) $(x + 10)^2 + (y + 8)^2 = 13$
- 20)



Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

21)



22) $(h, k) = (\frac{3}{2}, -2); r = \frac{\sqrt{30}}{2}$

23) $x^2 + y^2 + 8x + 6y - 12 = 0$

24) $(h, k) = (-4, -6); r = 7$

25) $x = 7$

26) $x = -\frac{4}{9}$

27) $y = 2$

28) $y = 4x + 6$

29) $y = -\frac{16}{9}x + \frac{8}{9}$

30) $y = \frac{5}{7}x + \frac{9}{7}$

31) slope = $\frac{9}{10}$; y-intercept = -9

32) $6x + 7y = 59$

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

34) C

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

36) D

37) D

38) 7.071 sec.

39) $A = \frac{16}{x^2}$

40) 0.6 hours

41) A

42) B

43) C

44) $(-2, -1); x = -2$

45) $y + 1 = -\frac{1}{4}(x + 3)$

Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

46) $F = \frac{kmv^2}{r}$

47) parallel

48) function

domain: $\{-1, 0, 5, 6\}$

range: $\{6, 5, -4, -1\}$

49) not a function

50) $C = -5$

51) $\{x \mid x \leq 21\}$

52) not a function

53) A

54) B

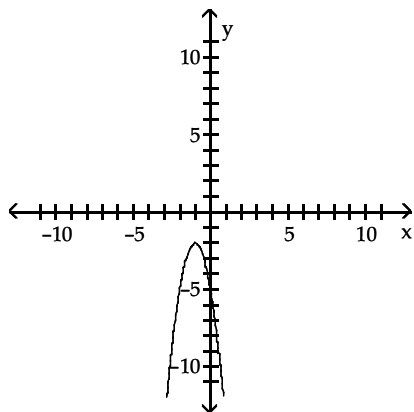
55) $\sqrt{55}$

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

57) $A = 197$

58) $-15, 17.5, 25$

59)



60) $\{(4, -3), (5, -1), (2, 0), (4, 2), (7, 5)\}$; not a function

61) $\{x \mid x \neq -7, 7\}$

62) $\{x \mid x > 9\}$

63) $(f - g)(x) = 4x - 2$; all real numbers

64) $\left(\frac{f}{g}\right)(x) = \frac{5x + 1}{4x - 3}$; $\{x \mid x \neq \frac{3}{4}\}$

65) function

domain: $\{x \mid x \geq -2\}$

range: $\{y \mid y \leq 0\}$

intercepts: $(-2, 0), (0, -2), (2, 0)$

symmetry: none

66) negative

67) odd

68) even

69) even

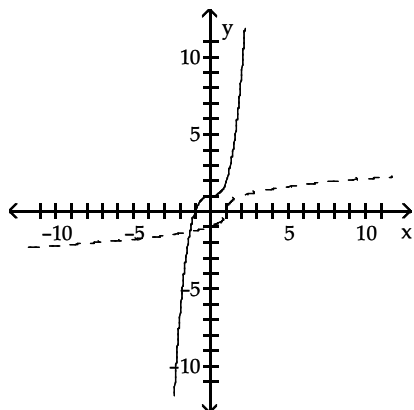
70) odd

71) decreasing

Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

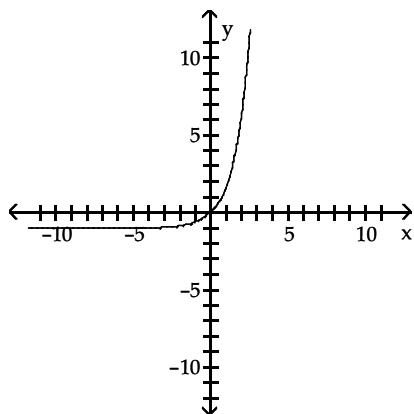
72)



73) $f^{-1}(x) = \frac{5x+2}{3-x}$; domain of f : $\{x \mid x \neq -5\}$; range of f : $\{y \mid y \neq 3\}$

74) not exponential

75)



domain: $(-\infty, \infty)$

range: $(-1, \infty)$

horizontal asymptote: $y = -1$

76) 3

77) $x = -11$

78) $\log_{32} 2 = \frac{1}{5}$

79) $b^3 = 8$

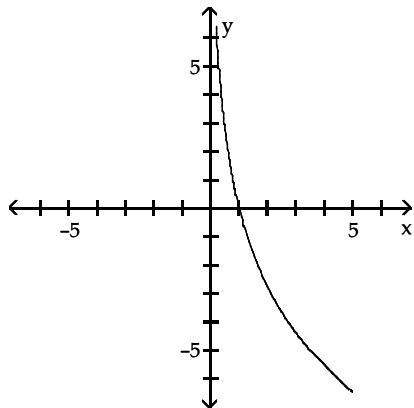
80) 0

81) $x < 3$

Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

82)



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

84) 1

85) 8.4

86) 46.6

87) $\frac{1}{3} \log_{19} 14 - 2 \log_{19} q - \log_{19} p$

88) $\log_a \frac{tu^4}{s}$

89) \emptyset

90) 3.63

91) \$1643.18

92) 20.926 years

93) -1.85

94) 0.794

95) 2

96) -3

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

98) 36.555

99) No

100) C

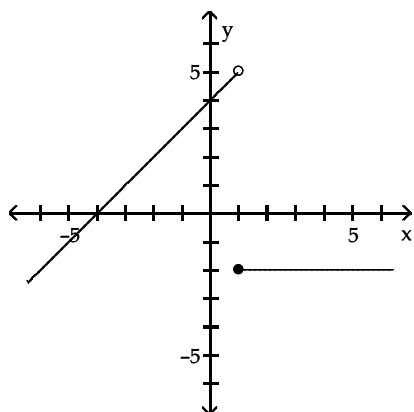
101) f has a local maximum at $x = 0$; the local maximum is 1

102) $-\frac{1}{x+2}$

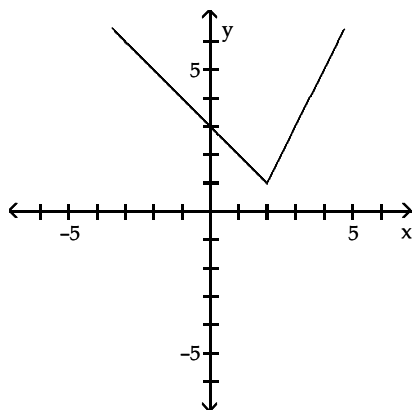
Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

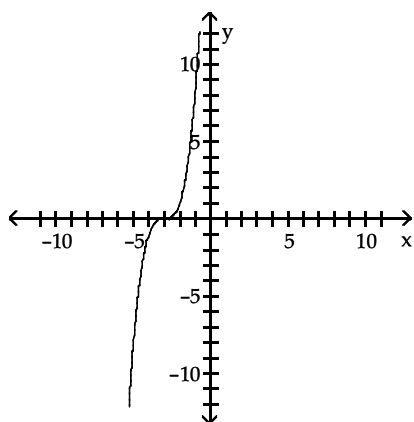
103)



104)



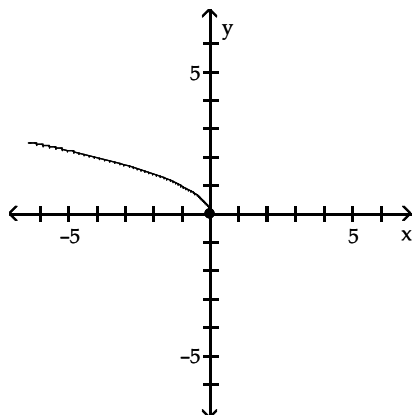
105)



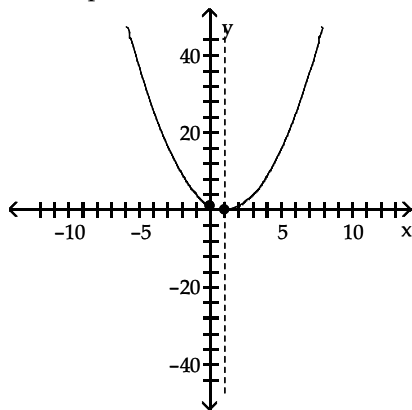
Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

106)



107) vertex (1, 0)
intercepts (0, 1), (1, 0)



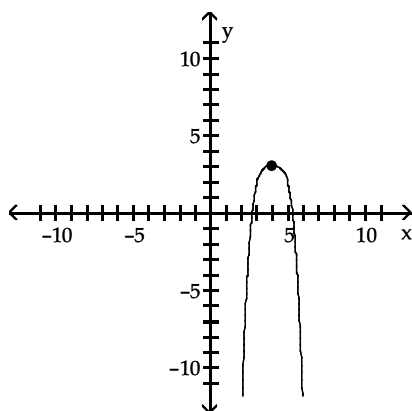
108) maximum; -7

109) 1412.5 ft

110) Yes; degree 3

111) No; x is raised to the negative 6 power

112)



113) $f(x) = x^4 - 8x^2 + 16$

114) -7, multiplicity 1, crosses x-axis; -3, multiplicity 2, touches x-axis

115) x-intercepts: -6, -5, 5; y-intercept: -150

116) $\{x \mid x \neq -7, x \neq 8\}$

117) all real numbers

Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

118) $x = -7, x = -5$

119) $y = 0$

120) $(6, 0)$ and $(-\frac{7}{2}, 0)$

121) $(0, \frac{4}{11})$

122) $y = x + 3$

123) A

124) $\{x \mid x \neq -15\}$

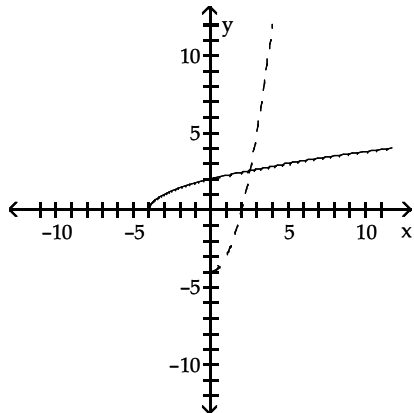
125) $\sqrt{6}$

126) No

127) $f^{-1}(x) = \frac{x-6}{6}$

128) 90.781

129)

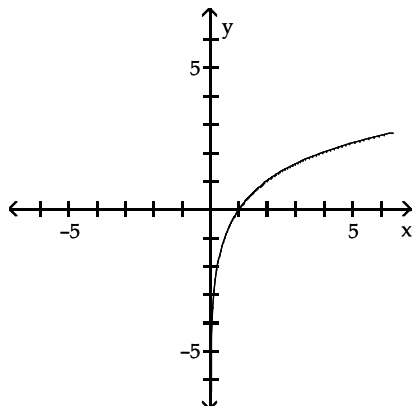


130) 3, -3

131) $\ln 14 = x$

132) -3

133)



134) 4.19

135) $x = 27$

136) 2.90

137) 4, multiplicity 1, crosses x-axis; 3, multiplicity 2, touches x-axis

Answer Key

Testname: MAC1105_PRACTICE_2007 (V1)

138) above the x-axis: $(3, \infty)$

below the x-axis: $(-\infty, -\frac{1}{6})$, $(-\frac{1}{6}, 3)$

139) A

140) $\{x \mid x \neq 0, x \neq -16\}$

141) $x = 7, x = -2$

142) $y = \frac{7}{2}$

143) $x = 10, y = -3$

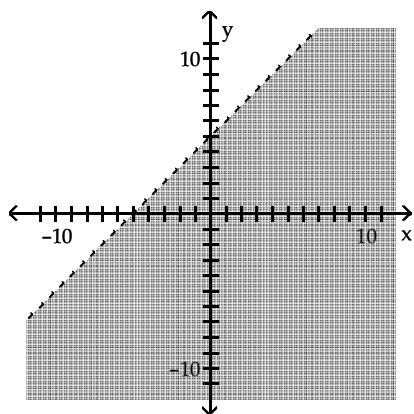
144) solution

145) $x = 3, y = 8$

146) $x = \sqrt{17}, y = \sqrt{19}$; $x = -\sqrt{17}, y = \sqrt{19}$; $x = \sqrt{17}, y = -\sqrt{19}$; $x = -\sqrt{17}, y = -\sqrt{19}$

147) $x = 2, y = 3$; $x = 2, y = -3$; $x = -2, y = 3$; $x = -2, y = -3$

148)



149)

