

Evaluate the function at the given value of the independent variable and simplify.

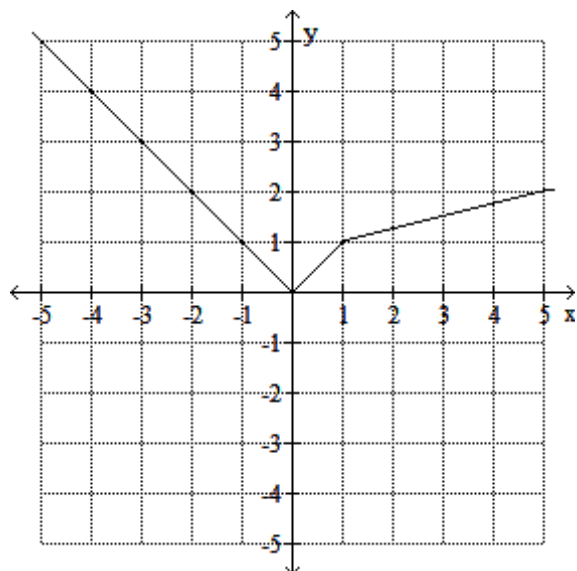
1) $x^2 - 5$; $f(x - 4)$

1) _____

Use the graph to find the indicated function value.

2) $y = f(x)$. Find $f(-2)$

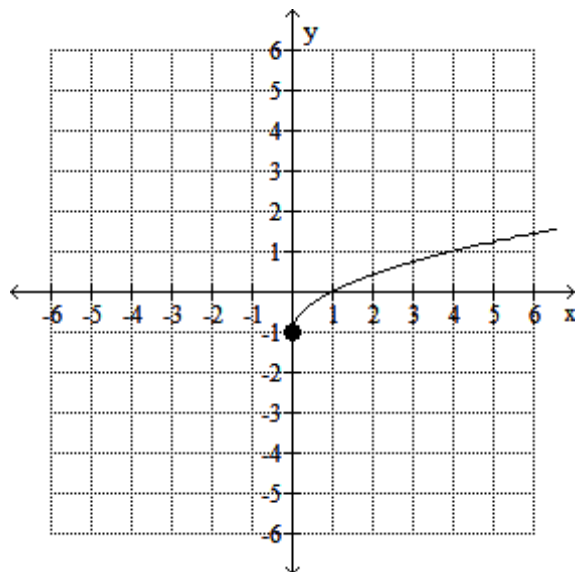
2) _____



Use the graph to determine the function's domain and range.

3)

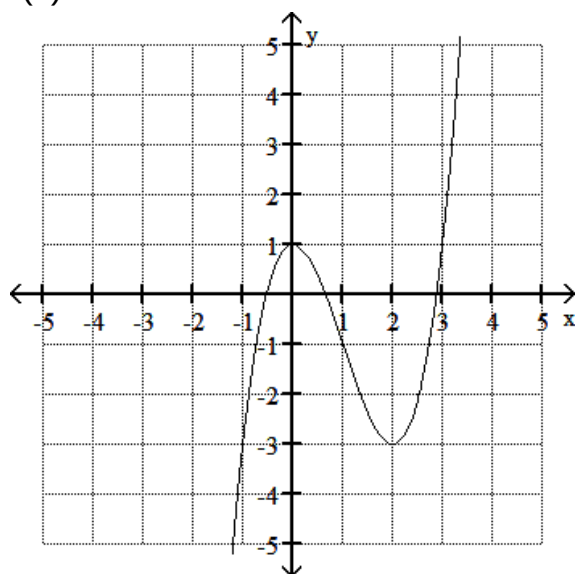
3) _____



Use the graph of the given function to find any relative maxima and relative minima. State where $f(x)$ increases and decreases

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

4) _____



Find and simplify the difference quotient $\frac{f(x+h) - f(x)}{h}$, $h \neq 0$ for the given function.

5) $x^2 + 7x + 3$

5) _____

Use the given conditions to write an equation for the line in slope-intercept form.

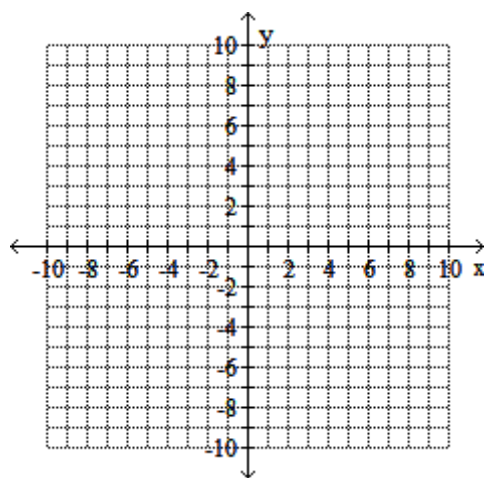
6) Passing through (2, 5) and (1, 8)

6) _____

Begin by graphing the standard quadratic function $f(x) = x^2$. Then use transformations of this graph to graph the given function.

7) $g(x) = -\frac{1}{2}(x+2)^2 + 3$

7) _____



For the given functions f and g , find the indicated composition.

8) $f(x) = \frac{7}{x+4}$, $g(x) = \frac{4}{5x}$

8) _____

$(f \circ g)(x)$

Find the inverse of the one-to-one function.

9) $f(x) = \frac{3}{2x + 1}$

9) _____

Complete the square and write the equation in standard form. Then give the center and radius of the circle.

10) $10x + 25 + y^2 - 8y + 16 = 64$

10) _____

Find the product and write the result in standard form.

11) $(8 - 3i)(-2 - 3i)$

11) _____

Divide and express the result in standard form.

12) $\frac{5}{8 - i}$

12) _____

Solve the quadratic equation using the quadratic formula. Express the solution in standard form.

13) $4x^2 - 3x + 1 = 0$

13) _____

Find the zeros of the polynomial function.

16) $x^3 + 4x^2 - 4x - 16$

16) _____

Divide using long division or synthetic division

17) $\frac{3m^3 + 18m^2 - 74m + 63}{m + 9}$

17) _____

Find a rational zero of the polynomial function and use it to find all the zeros of the function.

18) $x^3 - 8x^2 - 19x - 14$

18) _____

Find the domain of the rational function.

19) $h(x) = \frac{x + 2}{x^2 - 49x}$

19) _____

Find the vertical asymptotes, if any, of the graph of the rational function.

20) $\frac{-64}{-15x + 54}$

20) _____

Find the horizontal asymptote, if any, of the graph of the rational function.

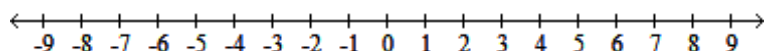
21) $g(x) = \frac{8x^2}{2x^2 + 1}$

21) _____

Solve the polynomial inequality and graph the solution set on a number line. Express the solution set in interval notation.

22) $x^2 + 3x - 4 > 0$

22) _____



Solve the exponential equation. Express the solution set in terms of natural logarithms.

23) $e^{2x} = 7$

23) _____

Solve the exponential equation. Use a calculator to obtain a decimal approximation, correct to two decimal places, for the solution.

24) $5^{x+7} = 8$

24) _____

Solve the logarithmic equation. Be sure to reject any value that is not in the domain of the original logarithmic expressions. Give the exact answer.

25) $\log_5(x+2) = -3$

25) _____

26) $2 \ln(7x) = 18$

26) _____

27) The formula $A = 238e^{0.032t}$ models the population of a particular city, in thousands, t years after 1998. When will the population of the city reach 317 thousand?

27) _____

Find the exact value of the expression.

28) $\sin \frac{-2\pi}{3}$

28) _____

29) $\sec \frac{-5\pi}{4}$

29) _____

Find the exact value of the expression.

30) $\sin^{-1} \frac{\sqrt{2}}{2}$

30) _____

Find the exact value of the expression.

31) $\cos \left(\sin^{-1} \frac{4}{5} \right)$

31) _____

Use a right triangle to write the expression as an algebraic expression. Assume that x is positive and in the domain of the given inverse trigonometric function.

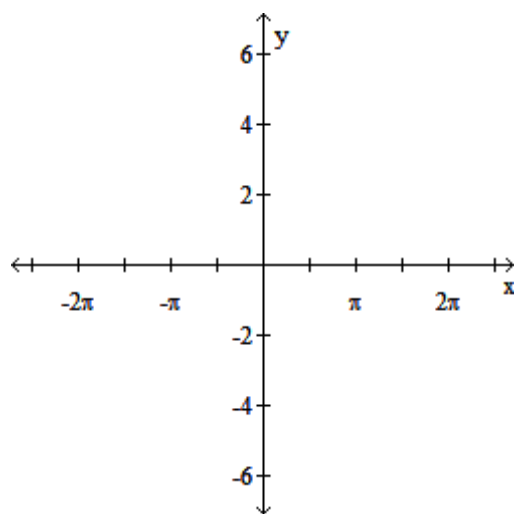
32) $\sin(\tan^{-1} x)$

32) _____

Use a transformations to graph the function.

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

33) _____



Use the given information to find the exact value of the expression.

34) $\sin \theta = \frac{15}{17}$, θ lies in quadrant I Find $\cos 2\theta$.

34) _____

Find all solutions of the equation.

35) $2 \cos x - 1 = 0$

35) _____

Solve the equation on the interval $[0, 2\pi)$.

36) $\cos x + 2 \cos x \sin x = 0$

36) _____

Solve the equation on the interval $[0, 2\pi)$.

37) $2 \cos^2 x + \sin x - 2 = 0$

37) _____

41) A vendor sells hot dogs and bags of potato chips. A customer buys 5 hot dogs and 4 bags of potato chips for \$15.50. Another customer buys 2 hot dogs and 5 bags of potato chips for \$8.75. Find the cost of each item.

41) _____

Solve the system

42) $x - 2y = 3$

$x^2 - xy = 20$

42) _____

Graph the solution set of the system of inequalities or indicate that the system has no solution.

43) $x^2 + y^2 \leq 25$

$y > 3^x$

43) _____

