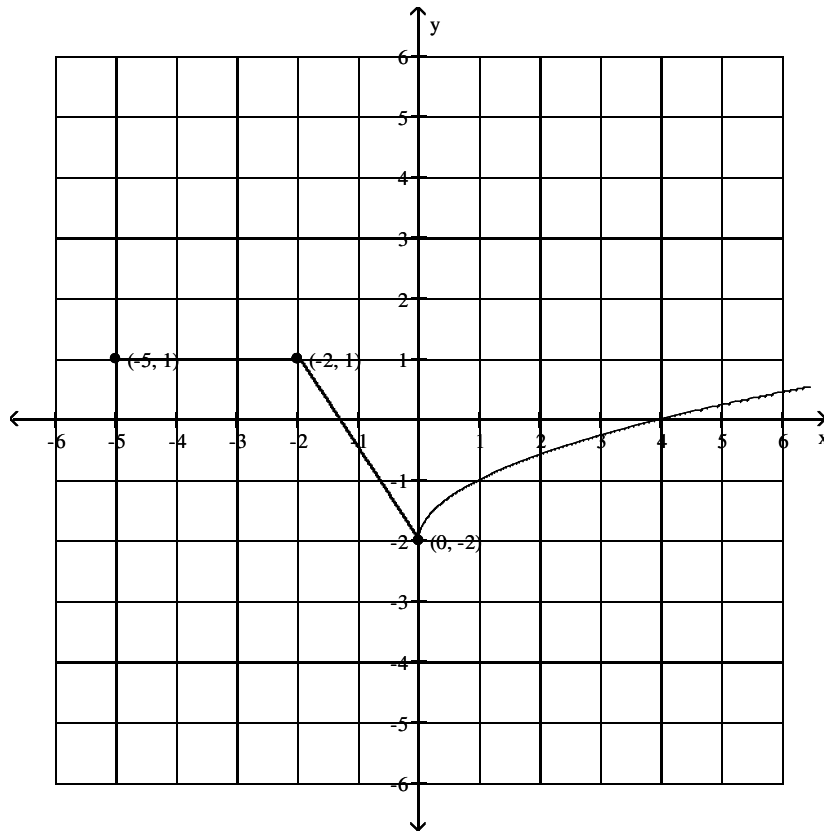


- i. Show all relevant work. No work, no credit.
- ii. Write your answers in the spaces provided on the right.
- iii. Staple when you turn in the assignment.

For the graph of a function f , determine the domain or the range as indicated.

1)



a. State the Domain

b. State the Range

c. State the intervals where the function is increasing.

d. State the intervals where the function is decreasing.

e. State the intervals where the function is constant.

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

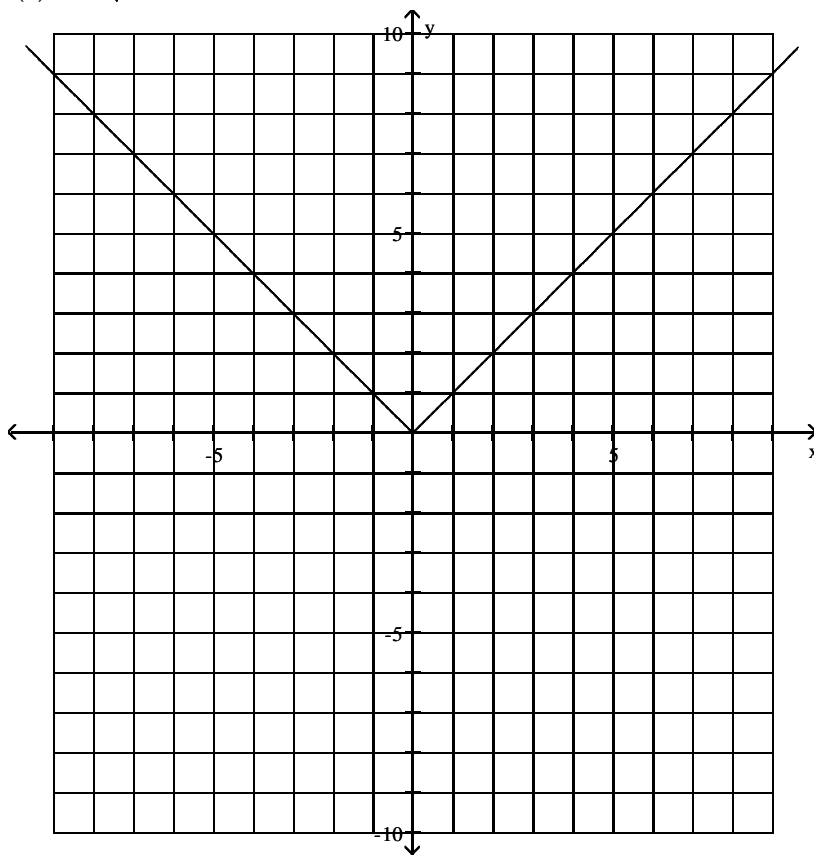
2) $f(x) = 5x^3 - 2$

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

4) $f(x) = \frac{x}{x^2 - 2}$

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

5) $f(x) = -2\sqrt{x-4} + 7$



Find the domain of $f(x)$.

6) $f(x) = \frac{\sqrt{x-3}}{x^2 - 7x + 10}$

Apply the Difference Quotient to the given functions.

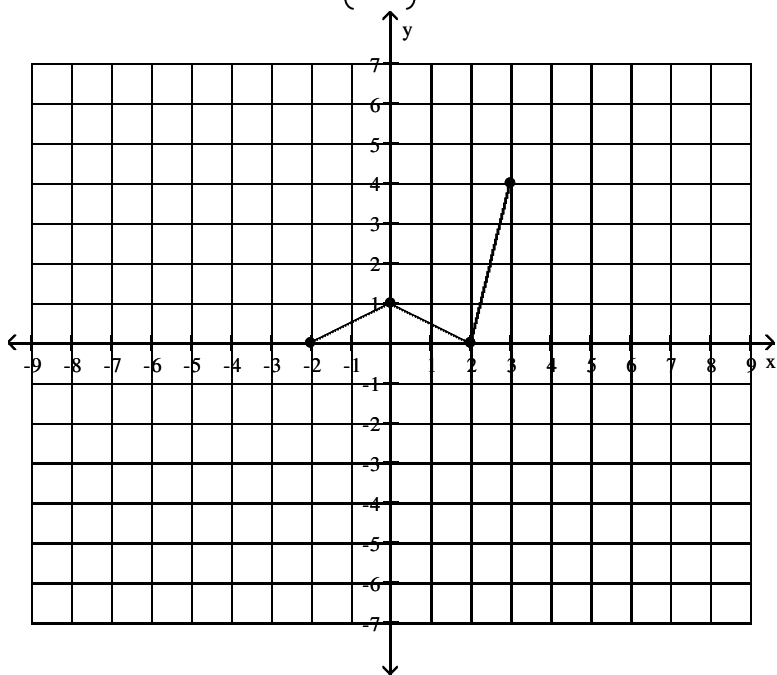
$$7) f(x) = \frac{-4}{x+8}$$

Apply the Difference Quotient to the given function.

$$8) f(x) = \sqrt{2x-1}$$

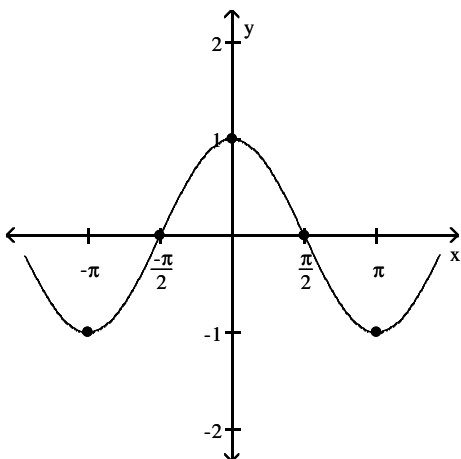
The graph of a function $f(x)$ is given. Use the graph to answer the question.

9) Graph the function of $g(x) = f\left(-\frac{1}{2}x\right) - 3$



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

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



For the function, find the average rate of change of f from $x = 1$ to $x = 5$

11) $f(x) = \frac{7}{x+6}$

Solve.

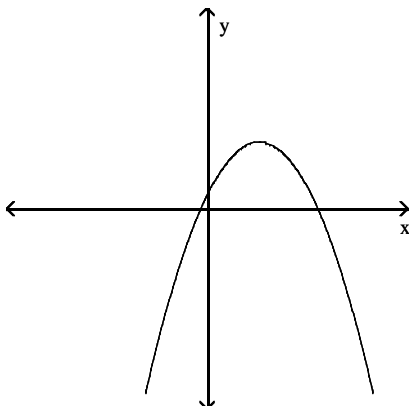
12) What is the minimum product of two numbers whose difference is 100?

Solve the problem.

13) A developer wants to enclose a rectangular grassy lot that borders a city street for parking. If the developer has 352 feet of fencing and does not fence the side along the street, what is the largest area that can be enclosed?

Use the horizontal line test to determine whether the function is one-to-one.

14)



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

$$15) f(x) = \frac{5+x}{x}, g(x) = \frac{5}{x-1}$$

The function f is one-to-one. Find its inverse. Make sure to state the domain.

$$16) f(x) = \sqrt{x+2} - 5$$

Given $f(x)$ and $g(x)$, find the indicated composition.

17) $f(x) = 4x^2 + 6x + 8$; $g(x) = 6x - 4$

Find $(f \circ g)(x)$.

Given $f(x)$ and $g(x)$, find the indicated composition and evaluate.

18) $f(x) = \sqrt{3x + 8}$; $g(x) = 2x^2$

Find $(g \circ f)(2)$.