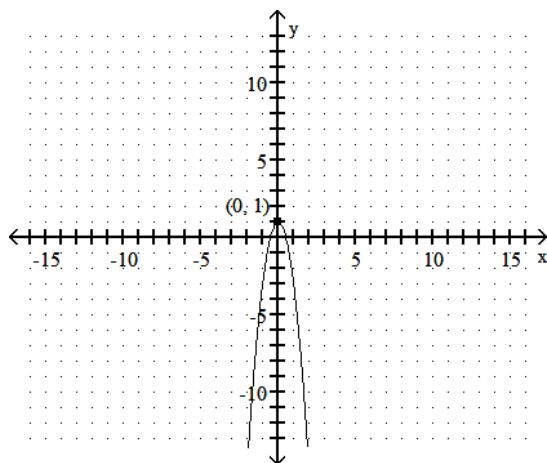


YOU MUST SHOW ALL WORK TO RECEIVE CREDIT.

Determine the intervals over which the function is decreasing, increasing, and constant. WRITE YOUR ANSWER IN INTERVAL NOTATION.

1)



Evaluate the function for the given values of x .

2)

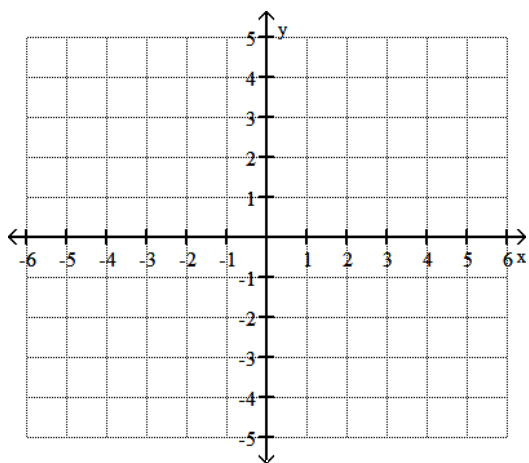
$$f(x) = \begin{cases} -5x + 3, & \text{for } x < -1 \\ x^2 - 2, & \text{for } -1 \leq x < 5 \\ 4, & \text{for } x \geq 5 \end{cases}$$

(a) $f(-1)$;

(b) $f(6)$

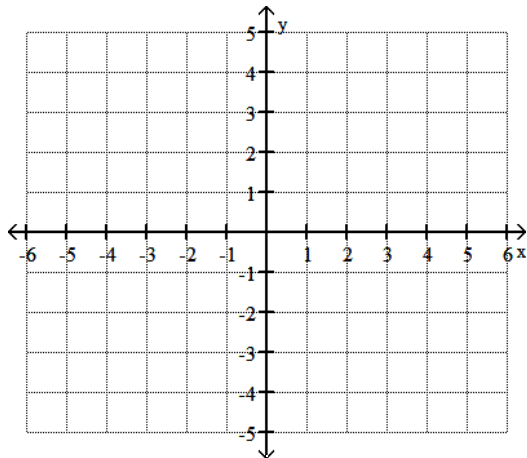
Graph the function.

$$3) f(x) = \begin{cases} -5 - x, & x < 1 \\ 3, & x \geq 1 \end{cases}$$



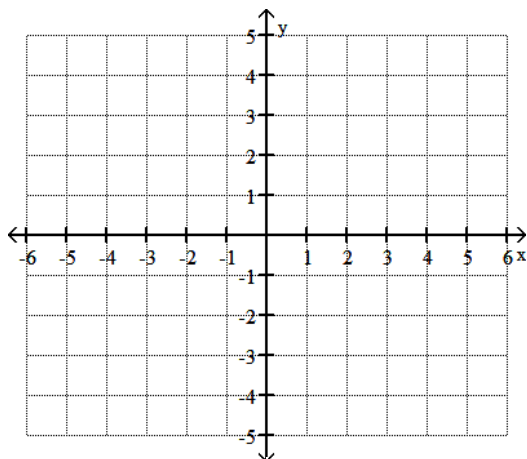
Graph the given function. Be sure to plot x- and y-intercepts (if they exist).

4) $g(x) = x^2 + 2$



Graph the given function. Be sure to plot x- and y-intercepts (if they exist).

5) $g(x) = \sqrt{-x - 5}$

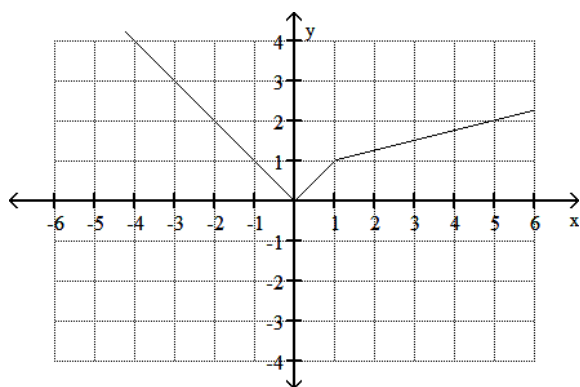


Determine whether the given function is even, odd, or neither. Justify your answer.

6) $f(x) = 5x^2 + x^4$

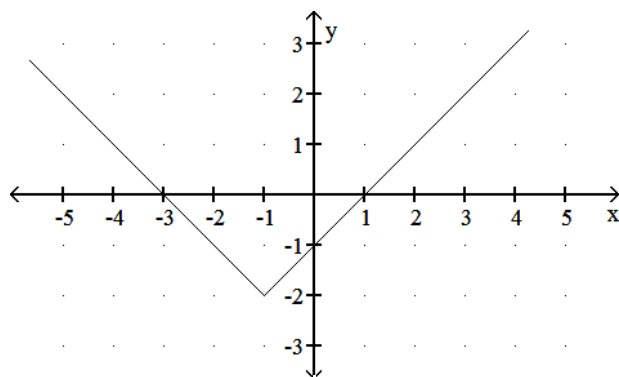
Use the graph to find the indicated function value.

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



Determine the domain and range of the function.

8)



Find the domain of the function.. Write the domain in interval notation.

9) $f(x) = \frac{6}{\sqrt{4-x}}$

10) $f(x) = 2x^2 - 9x$, $g(x) = x^2 - 3x - 54$ Find f/g .

11) Find $(f - g)(-1)$ given $f(x) = 2x^2 + 1$ and $g(x) = x - 4$.

12) Given $f(x) = 4x^2 + 2x + 8$ and $g(x) = 2x - 7$, find $(g \circ f)(x)$.

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

13) $f(x) = x^2 + 6x + 5$

Find the distance between the pair of points. Leave your answer in closed form (no decimals).

14) $(-3\sqrt{7}, -2)$ and $(-2\sqrt{7}, 1)$

Find the coordinates of the midpoint of the line segment PQ.

15) $P(-5.9, -0.5)$, $Q(1.7, -2.3)$

Write the equation of the circle in in standard form. Find the center and radius and use them to graph the circle.

16) $x^2 + y^2 + 6x + 8y + 16 = 0$

