

Determine whether the graph is an even function, odd function, or neither.

1.  $h(x) = x^2 + 1$

$h(2) = (2)^2 + 1 = 5$   
 $h(-2) = (-2)^2 + 1 = 5$

**Even**

2.  $G(x) = 2x^5 - 10$

$G(2) = 2(2)^5 - 10 = 54$   
 $G(-2) = 2(-2)^5 - 10 = -74$

**Neither**

3.  $T(x) = |x| + 2$

$T(2) = |2| + 2 = 4$   
 $T(-2) = |-2| + 2 = 4$

**EVEN**

4.  $k(x) = x^2 + 4x + 8$

$K(2) = (2)^2 + 4(2) + 8 = 20$   
 $K(-2) = (-2)^2 + 4(-2) + 8 = 4$

**Neither**

5.  $g(x) = \sqrt{3-x^2}$

$g(2) = \sqrt{3-(2)^2} = \sqrt{-1}$   
 $g(-2) = \sqrt{3-(-2)^2} = \sqrt{-1}$

**EVEN**

6.  $h(x) = 16x^2 + x$

$h(2) = 16(2)^2 + 2 = 66$   
 $h(-2) = 16(-2)^2 - 2 = 62$

**Neither**

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

$g(2) = \frac{(2)^3}{(2)^2+1} = \frac{8}{5}$   
 $g(-2) = \frac{(-2)^3}{(-2)^2+1} = \frac{-8}{5}$

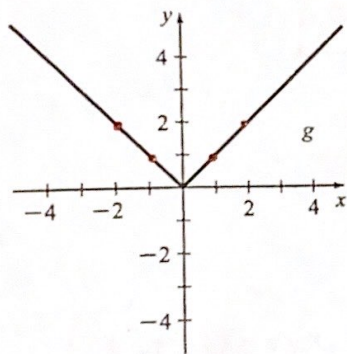
**Odd**

8.  $f(x) = 4x^4 + 10x$

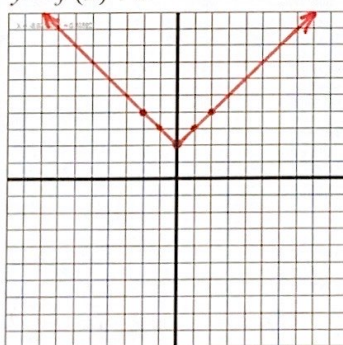
$f(2) = 4(2)^4 + 10(2) = 84$   
 $f(-2) = 4(-2)^4 + 10(-2) = 44$

**Neither**

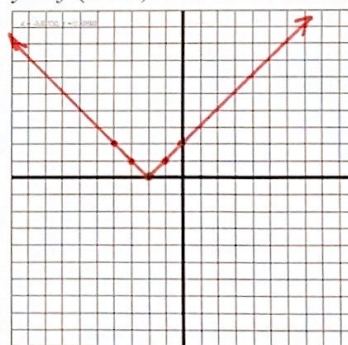
9. Use the graph of  $f$  to sketch the graph of



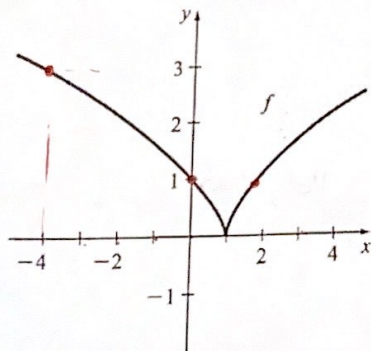
a.  $y = f(x) + 2$



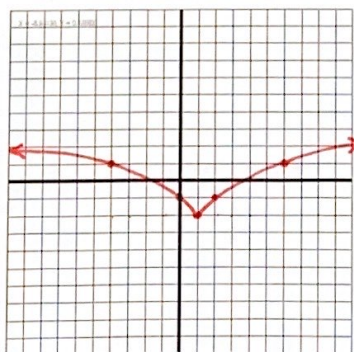
b.  $y = f(x+2)$



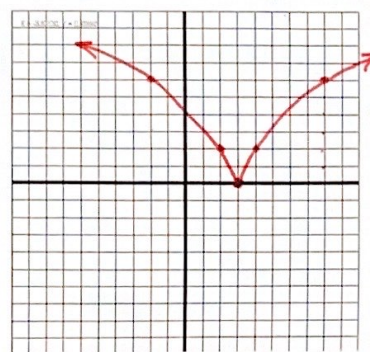
10. Use the graph of  $g$  to sketch the graph of



a.  $y = g(x-1) - 2$



b.  $y = 2g(x-3)$



11. Let  $f$  be a function such that  $f(-3) = -1$ ,  $f(1) = -3$ ,  $f(4) = 2$ . Give the coordinates of three points on the graph of:

a.  $y = f(x-2)$   $(x+2, y)$

$$\boxed{(-1, -1), (3, -3), (6, 2)}$$

b.  $y = f(x) - 2$   $(x, y-2)$

$$\boxed{(-3, -3), (1, -5), (4, 0)}$$

12. Let  $g$  be a function such that  $g(-1) = 3$ , and  $f(2) = -4$ . Give the coordinates of the two points on the graph of:

a.  $y = -g(x)$   $(x, -y)$

$$\boxed{(-1, -3), (2, 4)}$$

b.  $y = g(-x)$   $(-x, y)$

$$\boxed{(1, 3), (-2, -4)}$$

Write the equation of a line in slope-intercept form, that satisfies the given conditions.

13. Find the equation of the line whose graph is parallel to the graph of  $2x - 5y = 2$  and passes through the point  $P(-1, -5)$ .

$$\boxed{y = \frac{2}{5}x - \frac{23}{5}}$$

14. Find the equation of the line whose graph is perpendicular to the graph of  $y = -\frac{3}{2}x - 2$  and passes through the point  $P(3, -1)$ .

$$\boxed{y = \frac{2}{3}x - 3}$$

Write the quadratic function in vertex form.

15.  $g(x) = x^2 + 6x + 10$

$$g(x) = (x+3)^2 + 1$$

16.  $f(x) = 4x^2 - 6x + 1$

$$f(x) = 4\left(x - \frac{3}{4}\right)^2 - \frac{5}{4}$$

17.  $h(x) = -x^2 - 8x + 3$

$$h(x) = -(x+4)^2 + 19$$

Find the maximum or minimum value of the function. State whether the value is a minimum or maximum.

18.  $f(x) = -x^2 + 6x - 3$

$$6, \text{ max}$$

19.  $h(x) = 2x^2 + 3x - 4$

$$-\frac{41}{8}, \text{ min}$$

20.  $g(x) = -6x^2 + 60x + 11$

$$161, \text{ max}$$