

Worksheet 2.5-2.7

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

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

2. $F(x) = x^4 + x^2$

3. $H(x) = -2|x + 1|$

4. $f(x) = x$

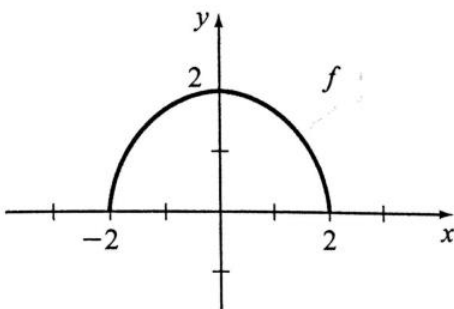
5. $g(x) = \sqrt{x^2 + 2}$

6. $h(x) = 4x^2$

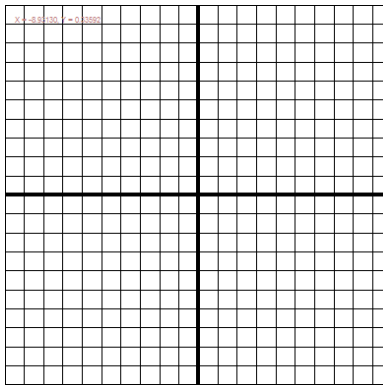
7. $g(x) = 4x^5 + 3x^3$

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

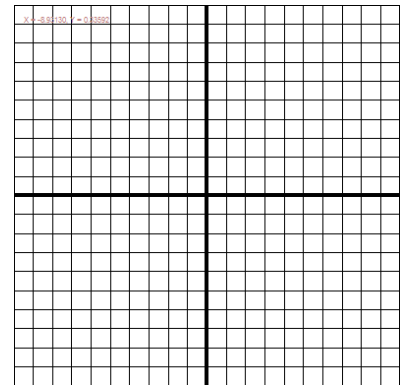
9. Use the graph of f to sketch the graph of



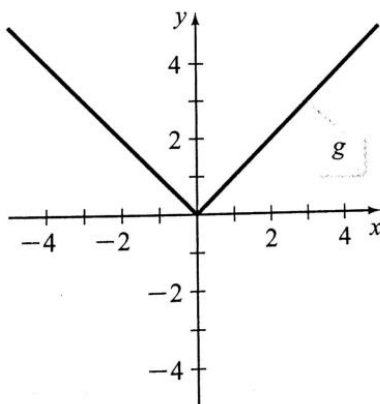
a. $y = f(x) - 2$



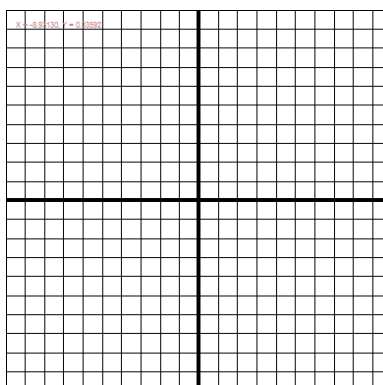
b. $y = f(x + 3)$



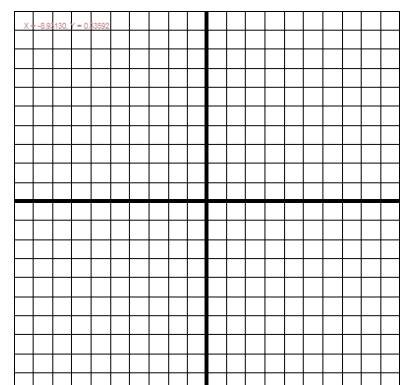
10. Use the graph of g to sketch the graph of



a. $y = g(x) + 4$



b. $y = g(x - 1)$



11. Let f be a function such that $f(-1) = 6$, $f(0) = -3$, $f(2) = 5$. Give the coordinates of three points on the graph of:

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

b. $y = f(x) - 5$

12. Let g be a function such that $g(3) = -7$, and $f(-5) = -1$. Give the coordinates of the two points on the graph of:

a. $y = -g(x)$

b. $y = g(-x)$

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 $x - 4y = 8$ and passes through the point $P(-8, 5)$.

14. Find the equation of the line whose graph is perpendicular to the graph of $-5x - 3y = 9$ and passes through the point $P(10, -7)$.

Write the quadratic function in vertex form.

15. $g(x) = -x^2 - 8x - 3$

16. $f(x) = 2x^2 - 12x + 11$

17. $h(x) = x^2 + 6x - 7$

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

18. $f(x) = x^2 + 4x + 7$

19. $h(x) = -x^2 + 12x - 13$

20. $g(x) = 2x^2 + 16x + 9$

Answer the following.

21. Let $f(x) = x^2 - 3x - 8$, and $g(x) = x + 4$.

a. $(f + g)(x)$

b. $(f - g)(x)$

c. $(fg)(x)$

d. $\left(\frac{f}{g}\right)(x)$

22. Let $f(x) = 3x - 7$, and $g(x) = x + 3$.

a. $(f + g)(x)$

b. $(f - g)(x)$

c. $(fg)(x)$

d. $\left(\frac{f}{g}\right)(x)$

23. Let $f(x) = 2x^3 - 3x^2 + x$, and $g(x) = x$.

a. $(f + g)(x)$

b. $(f - g)(x)$

c. $(fg)(x)$

d. $\left(\frac{f}{g}\right)(x)$

Evaluate the indicate function, where $f(x) = x^2 - 2x + 3$ and $g(x) = x - 1$.

24. $(f + g)(4)$

25. $(f + g)\left(\frac{1}{2}\right)$

26. $(f - g)(-2)$

27. $(f - g)(3)$

Evaluate the indicate function, where $f(x) = x^2 - x + 4$ and $g(x) = 2x - 1$.

28. $(fg)(3)$

29. $\left(\frac{f}{g}\right)(-2)$

30. $\left(\frac{f}{g}\right)(4)$

31. $(fg)(-1)$

32. If $f(x) = 2x + 6$ and $g(x) = x + 2$, find the domain of $f + g$, $f - g$, fg , and $\frac{f}{g}$.

33. If $f(x) = x^2 - 4$ and $g(x) = \sqrt{x + 2}$, find the domain of $f + g$, $f - g$, fg , and $\frac{f}{g}$.

34. If $f(x) = \sqrt{x + 4}$ and $g(x) = x^2 - 16$, find the domain of $f + g$, $f - g$, fg , and $\frac{f}{g}$.

35. If $f(x) = 3x + 5$ and $g(x) = 2x - 7$, find $(f \circ g)(x)$ and $(g \circ f)(x)$.

36. If $f(x) = x^2 - 11x$ and $g(x) = x + 2$, find $(f \circ g)(x)$ and $(g \circ f)(x)$.

37. If $f(x) = -x^3 - 7$ and $g(x) = x + 1$, find $(f \circ g)(x)$ and $(g \circ f)(x)$.

Evaluate each composition function, where $f(x) = 2x - 1$, $g(x) = x^2 - 3x$, and $h(x) = 4 - x^2$.

38. $(g \circ f)(3)$

39. $(f \circ g)(-2)$

40. $(g \circ h)(0)$

41. $(f \circ f)(4)$

42. $(g \circ f)(c)$

Graph the following.

43. Let $f(x) = \begin{cases} 3x + 1, & x < -1 \\ x^2 - 2, & -1 \leq x \leq 4 \\ -x + 3, & x > 4 \end{cases}$

44. Let $f(x) = \begin{cases} 2x - 1, & x < -3 \\ x^2 + 1, & -3 \leq x \leq 1 \\ -2x, & x > 1 \end{cases}$