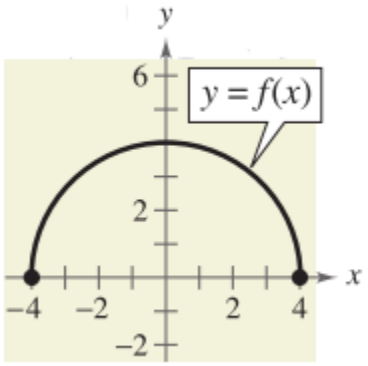
Name _____ Period _____

Worksheet 1.5 – Analyzing Graphs of Functions

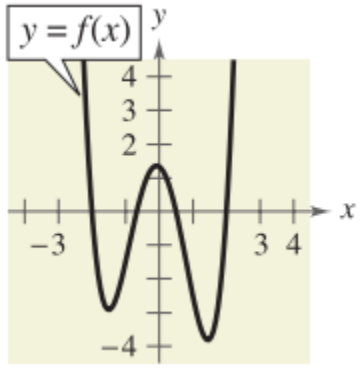
Find the domain and the range of the function.

1.



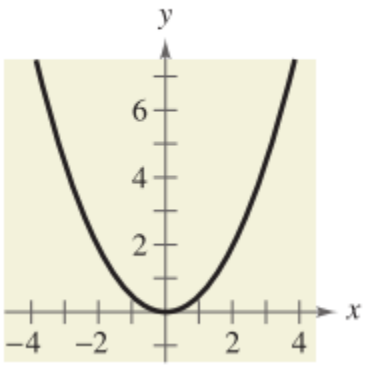
Use the graph of the function to find the indicated function values.

2. a) f (-2) b) f (-1) c) $f\left(\frac{1}{2}\right)$ d) f (1)

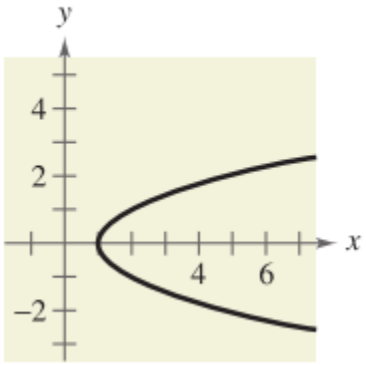


Use the Vertical Line Test to determine whether y is a function of x.

3. $y = \frac{1}{2}x^2$



4. $x - y^2 = 1$



Find the zeros of the function algebraically.

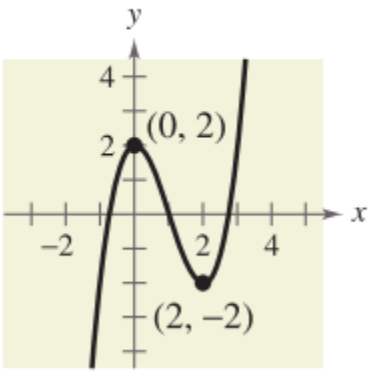
5. $f(x) = 2x^2 - 7x - 30$

6. $f(x) = \dfrac{x^2 - 9x + 14}{4x}$

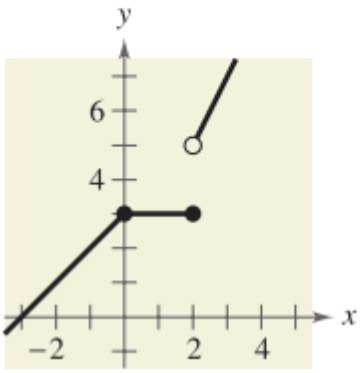
7. $\sqrt{3x + 2}$

Determine the intervals over which the function is increasing, decreasing, or constant.

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



9. $f(x) = \begin{cases} x + 3, & x \le 0 \\ 3, & 0 < x \le 2 \\ 2x + 1, & x > 2 \end{cases}$



Find the average rate of change of the function from x_1 *to* x_2.

$$\text{Average rate of change of } f \text{ from } x_1 \text{ to } x_2 = \frac{f(x_2) - f(x_1)}{x_2 - x_1}$$

10. $f(x) = -2x + 15$
$x_1 = 0, x_2 = 3$

11. $f(x) = x^2 + 12x - 4$
$x_1 = 1, x_2 = 5$

12. $f(x) = -\sqrt{x - 2} + 5$
$x_1 = 3, x_2 = 11$

Determine whether the function is even, odd, or neither. Then describe the symmetry.

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

14. $h(x) = x^3 - 5$

15. $g(x) = x^3 - 5x$