

Unit 0 Review: Algebra Review, 1.2, 1.3, 1.5, 1.6**Algebra Review**

Perform the operation indicated.

1) $4x - [2x - (x + 4)]$

2) $(\sqrt{6} - \sqrt{2})(\sqrt{6} + \sqrt{2})$

3) $(2w + 4)^2$

4) $3x(x^2 + 4x - 7)$

Simplify the following:

5) $\frac{3}{x+4} + \frac{2}{x-5}$

Factor Completely.

6) $x^3 - 5x^2$

7) $4y^2 - 9$

8) $r^2 - r - 6$

9) $25x^2 - 10x + 1$

10) $6x^2 - 7x - 5$

11) $4x^2 - 20x + 25$

Solve the equation

12) $2x^2 - 4 = 3x$

13) $-6(x - 3) + 5 = -2x + 10$

14) $x^2 - 8x + 5 = (x - 4)^2 - 11$

15) $4x^2 = 12$

16) $(x - 7)^2 = 25$

17) $16x^2 + 8x - 3 = 0$

18) $20x^2 - 125x = 0$

19) $9x^4 - 24x^3 + 16x^2 = 0$

20) $3x^3 + 5x^2 - 18x - 30 = 0$

21) $\frac{2x+3}{5x-9} = \frac{1}{2}$

Section 1.5: Compositions of FunctionsFor $f(x) = 2x + 1$, $g(x) = -3x$, and $h(x) = \frac{1}{2}x - 7$ find the following:

22) $(f \circ g)(x)$

23) $(f \circ h)(x)$

24) $(g \circ f)(x)$

For $f(x) = x^2 - x + 1$ and $g(x) = x + 5$ find the following:

25) $(f \circ g)(x)$

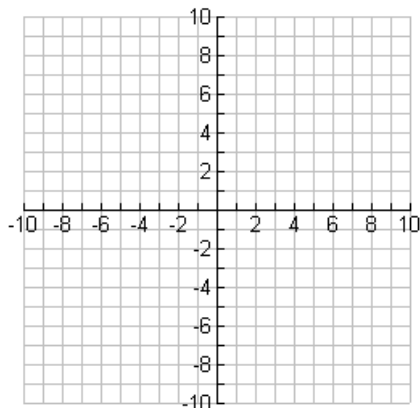
26) $(g \circ f)(x)$

27) $(f \circ g)(3)$

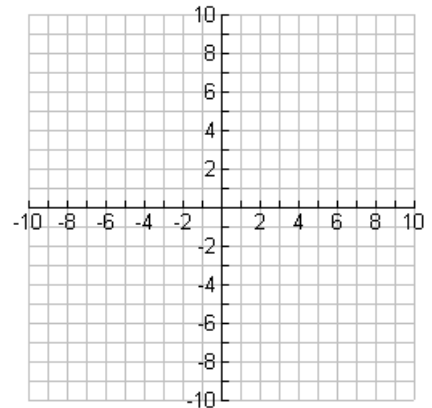
Section 1.6: Inverse Functions

Graph the function, then use the Horizontal Line Test to state whether the function is one-to-one.

28) $f(x) = -x + 3$



29) $h(x) = x^2$



Determine whether or not the function has an inverse function, and if so, find the inverse function.

30) $f(x) = x + 10$

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

32) $f(x) = 3x^3 - 7$

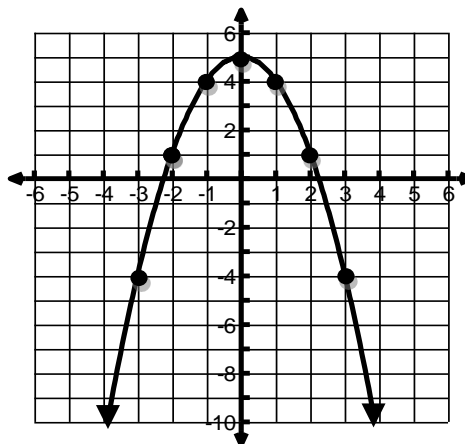
33) $f(x) = \sqrt{x + 8}$

For the graph $f(x)$ at the right:

34) Give the range of $f(-x)$

35) If $g(x) = 2f(x)$, find $g(2)$

36) If $h(x) = f(3x)$, find $h(-1)$



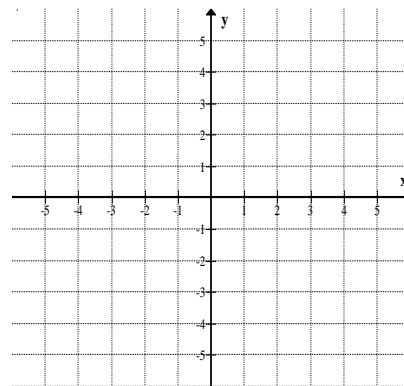
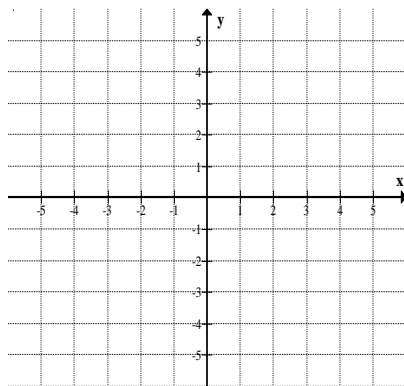
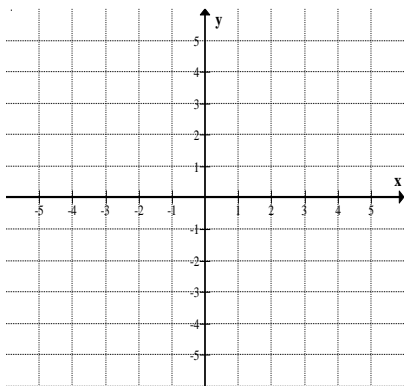
Section 1.2: Parent Functions:

37. Graph the following parent functions. Your graphs must be accurate with at least 2 points clearly marked. Give the domain, range and whether the graph is even, odd, or neither.

a. The Constant
 $y = 2$

b. The Linear
 $y = x$

c. The Quadratic
 $y = x^2$



D: _____

R: _____

Even/Odd/Neither

D: _____

R: _____

Even/Odd/Neither

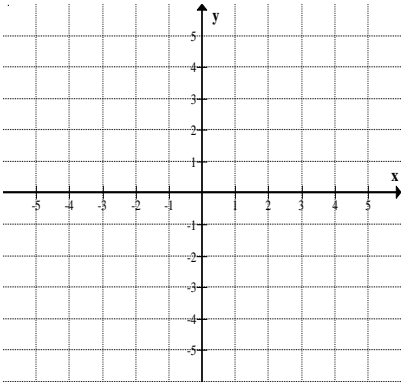
D: _____

R: _____

Even/Odd/Neither

d. The Square Root

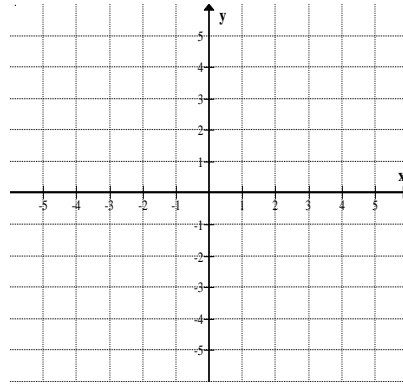
$$y = \sqrt{x}$$



D: _____
 R: _____
 Even/Odd/Neither

e. The Cubic

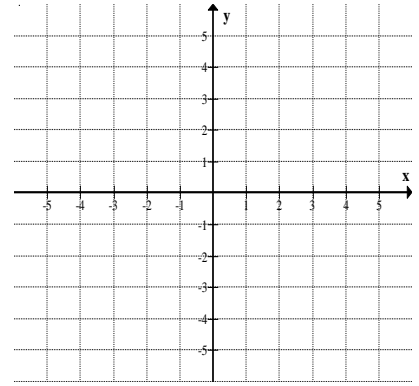
$$y = x^3$$



D: _____
 R: _____
 Even/Odd/Neither

f. The Cube Root

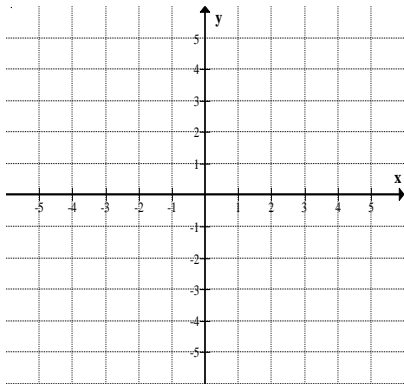
$$y = \sqrt[3]{x}$$



D: _____
 R: _____
 Even/Odd/Neither

g. The Absolute Value

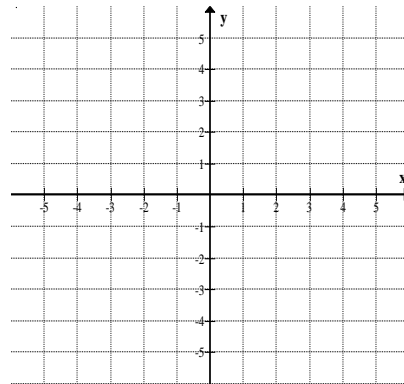
$$y = |x|$$



D: _____
 R: _____
 Even/Odd/Neither

h. The Rational

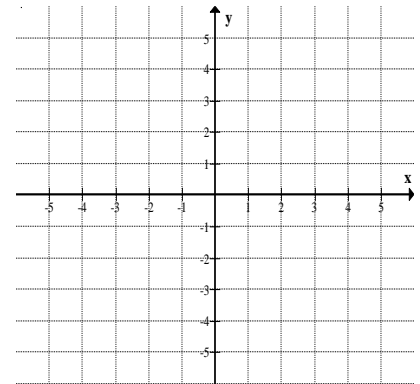
$$y = \frac{1}{x}$$



D: _____
 R: _____
 Even/Odd/Neither

i. The Greatest Integer

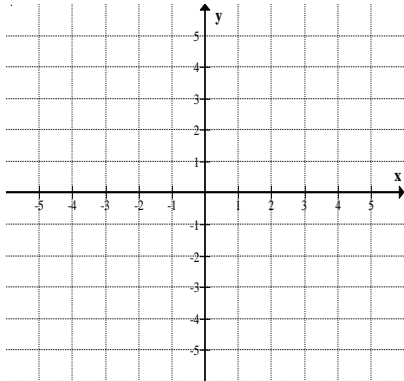
$$y = [x]$$



D: _____
 R: _____
 Even/Odd/Neither

j. Exponential

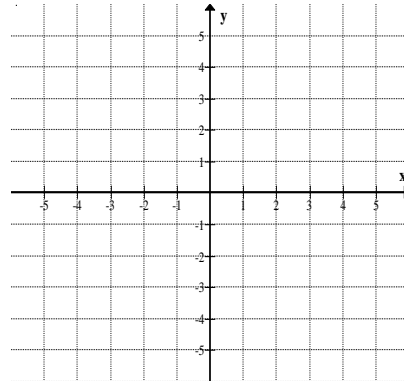
$$y = a^x$$



D: _____
 R: _____
 Even/Odd/Neither

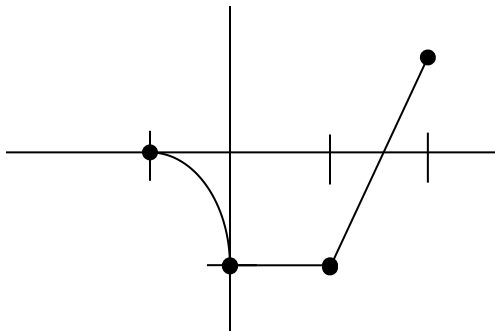
k. Logarithmic

$$y = \log_a x$$



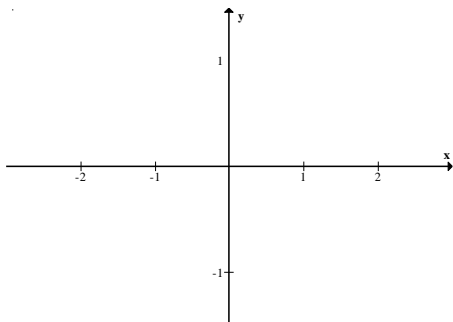
D: _____
 R: _____
 Even/Odd/Neither

38. The graph of the function $y=f(x)$ is shown.

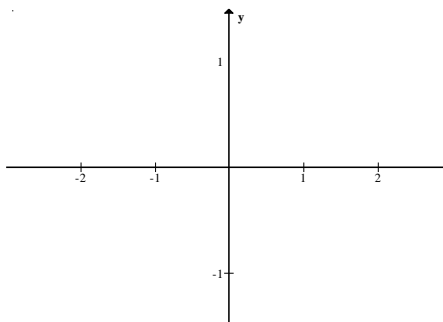


Carefully sketch a graph of each of the following

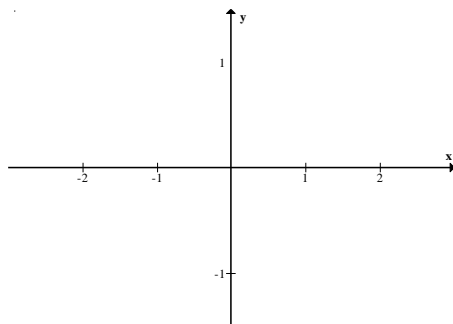
a. $y = f(x+1)$



b. $y = f(x) + 1$



c. $y = -f(x)$



d. $y = f(-x)$

