Bellwork: Solve for x: $-\cancel{7}-|2x+3|=-6$

$+7 \qquad +7$

$\frac{-|2x+3|}{-1} = \frac{1}{-1}$

$|2x+3| = -1$

$\boxed{\text{No soln.}}$

$|-1| = 1$

Homework 3.2 Solutions

1) $|v+6| = 10$ — $\{4, -16\}$

2) $|6+a| = 1$ — $\{-5, -7\}$

9) $|9n+8| = 98$ — $\left\{10, -\frac{106}{9}\right\}$

10) $|4-8p| = 84$ — $\{-10, 11\}$

3) $\left|\frac{m}{4}\right| = 1$ — $\{4, -4\}$

4) $\left|\frac{x}{6}\right| = 3$ — $\{18, -18\}$

11) $-10|5x-9| = -10$ — $\left\{2, \frac{8}{5}\right\}$

12) $|1-6n| - 4 = 13$ — $\left\{-\frac{8}{3}, 3\right\}$

13) $-5|6m+7| = -115$ — $\left\{\frac{8}{3}, -5\right\}$

14) $\frac{|8-9a|}{3} = 1$ — $\left\{\frac{5}{9}, \frac{11}{9}\right\}$

5) $|4+b| = -2$ — No solution.

6) $|8+x| = 1$ — $\{-7, -9\}$

7) $|-8p-9| = 49$ — $\left\{-\frac{29}{4}, 5\right\}$

8) $|10p+4| = 94$ — $\left\{9, -\frac{49}{5}\right\}$

15) The length of a standard basketball court can vary from 84 to 94 feet, inclusive. Write an absolute value inequality that describes the possible lengths of a standard basketball court.

$|x-89| \le 5$ or $|89-x| \le 5$

11) $\cancel{-10}|5x-9| = -10$

$\quad\ \ -\cancel{10} \qquad\qquad -10$

$|5x-9| = 1$

$|-1| = 1$

$|1| = 1$

$5x-\cancel{9} = 1$ $\quad +9\ +9$ $\quad \frac{\cancel{5}x}{\cancel{5}} = \frac{10}{5}$

$5x-\cancel{9} = -1$ $\quad +9\ +9$ $\quad \frac{\cancel{5}x}{\cancel{5}} = \frac{8}{5}$

$\boxed{x = 2,\ 8/5}$

15)

$\underbrace{84 \quad\quad}_{5}\underbrace{89 \quad\quad}_{5} 94$

works if $|\ell - 89| \le 5$

$|89-\ell| \le 5$

$|89-93|$

$|-4| \quad 4 \le 5$

$|80-89|$

$|-9| \le 5$

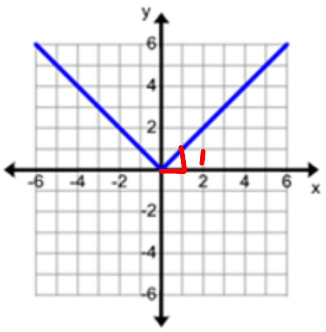
$9 \le 5$

Today's Objectives:

I can graph absolute value and radical functions

Three Parent Functions:

Absolute Value:

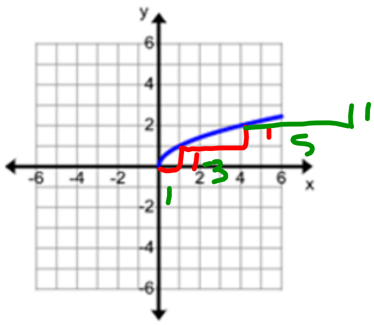


$f(x) = a|x - h| + k$

Vertex is (h, k)

To graph: determine the vertex then determine the slope. Please note that this is symmetrical across line $x = h$.

Square Root:

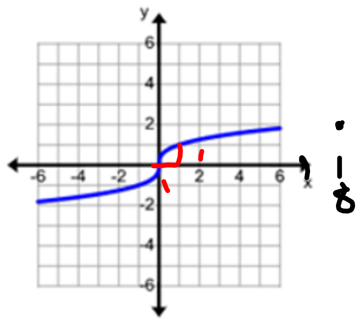


$f(x) = a\sqrt{x-h} + k$

Starting point is at (h, k)

To graph: Determine the starting point and find the appropriate arc.

Cubic Root:

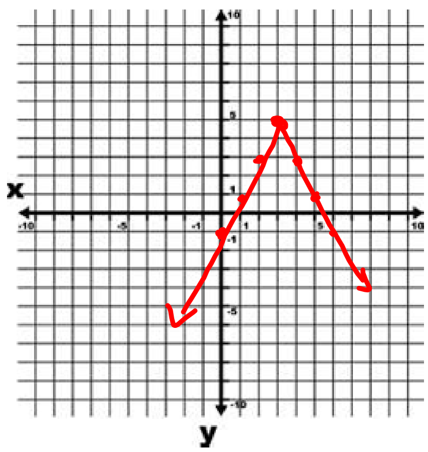


$f(x) = a\sqrt[3]{x-h} + k$

Center point at (h, k)

To graph: Determine the center and find surrounding points. Please note the rotational symmetry

1. $f(x) = -2|x - 3| + 5$



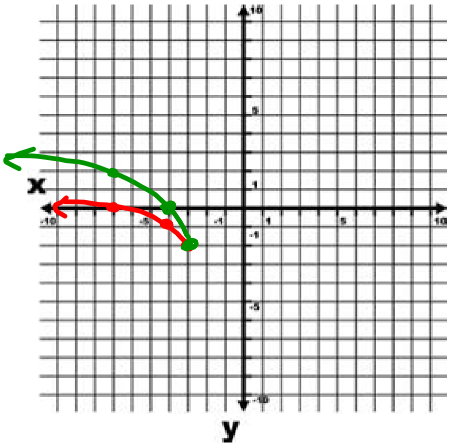
vertex: (3, 5)

(h, k)

2. $f(x) = \sqrt{-(x+3)} - 2$

s.p.: (-3,-2)

left-right flip



3. $f(x) = -\sqrt[3]{x-4} + 1$

-1 = a

c.p. (4,1)