Name: Answer Key Date:_____ Period:_____

Algebra Test Review:

Absolute Value Unit

Solve each absolute value equation. ~~Graph~~ and write your solution in interval notation.

1. $|n-2| = 2$

$n-2=2$ $\quad$ $n-2=-2$

$n=4$ $\quad$ $n=0$

$\{4, 0\}$

2. $|2m| = 12$

$2m=12$ $\quad$ $2m=-12$

$m=6$ $\quad$ $m=-6$

$\{6, -6\}$

3. $\left|\frac{-8-k}{3}\right| = 2$

$\frac{-8-k}{3}=2$ $\quad$ $\frac{-8-k}{3}=-2$

$-8-k=6$ $\quad$ $-8-k=-6$

$-k=14$ $\quad$ $-k=2$

$k=-14$ $\quad$ $k=-2$

$\{-14, -2\}$

4. $\frac{\cancel{2}|-7-6v|}{\cancel{2}} = \frac{70}{2}$

$|-7-6v|=35$

$-7-6v=35$ $\quad$ $-7-6v=-35$

$-6v=42$ $\quad$ $-6v=-28$

$v=-7$ $\quad$ $v=\frac{28}{6}$ or $\frac{14}{3}$

$\{-7, \frac{14}{3}\}$

5. $9 + |10 + x| = 9$

$-9 \qquad -9$

$|10 + x| = 0$

$10 + x = 0$

$x = -10$

$\{-10\}$

6. $\left|\frac{n}{4}\right| + 6 = 8$

$\left|\frac{n}{4}\right| = 2$

$\frac{n}{4} = 2 \qquad \frac{n}{4} = -2$

$n = 8 \qquad n = -8$

$\{8, -8\}$

7. $|5k - 6| + 10 = 10$

$|5k - 6| = 0$

$5k - 6 = 0$

$5k = 6$

$k = \frac{6}{5} \qquad \left\{\frac{6}{5}\right\}$

8. $|m - 2| - 9 = -15$

$|m - 2| = -6$

no solution

$\{\emptyset\}$

Solve each compound inequality and graph its solution. Write your solution in interval notation.

9. $|2 - x| + 3 > 8$

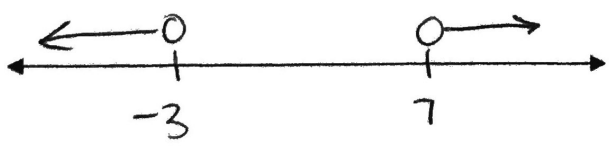
$-3 \qquad -3$

$|2 - x| > 5$ OR!

$2 - x > 5$ or $2 - x < -5$

$-x > 3 \qquad -x < -7$

$x < -3 \qquad x > 7$



$(-\infty, -3) \cup (7, \infty)$

10. $6 - 2|2 - p| \leq 4$

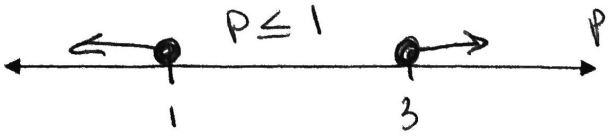
$\frac{\cancel{-2}|2-p|}{\cancel{-2}} \leq \frac{-2}{-2}$

$|2 - p| \geq 1$ or!

$2 - p \geq 1$ or $2 - p \leq -1$

$-p \geq -1 \qquad -p \leq -3$

$p \leq 1 \qquad p \geq 3$



$(-\infty, 1] \cup [3, \infty)$

11. $-4|6+2r| > 20$

$|6+2r| < -5$

no solution

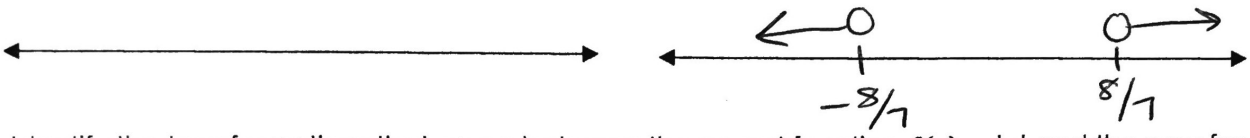
12. $7|7x| - 14 > 42$

$7|7x| > 56$

$|7x| > 8$ or!

$7x > 8$ $\quad$ $7x < -8$

$x > 8/7$ $\quad$ $x < -8/7$



$(-\infty, -8/7) \cup (8/7, \infty)$

2. Identify the transformations that occur between the parent function $f(x) = |x|$ and the new function (x).

a. $g(x) = |x-3| + 7$

- right 3
- up 7

b. $g(x) = -|x| - 8$

- down 8
- reflect over x axis

c. $g(x) = -|x+4|$

- left 4
- reflect over x-axis

Graph the function in the coordinate plane. Then analyze the aspects of the graph and identify any transformations that occur in relation to the parent function, $f(x) = |x|$.

3. $f(x) = 2|x+1| - 8$

Descriptions of Transformations:

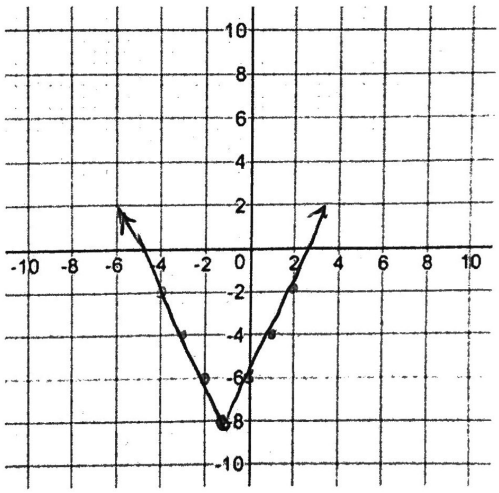
left 1
down 8
vertical stretch

Vertex:

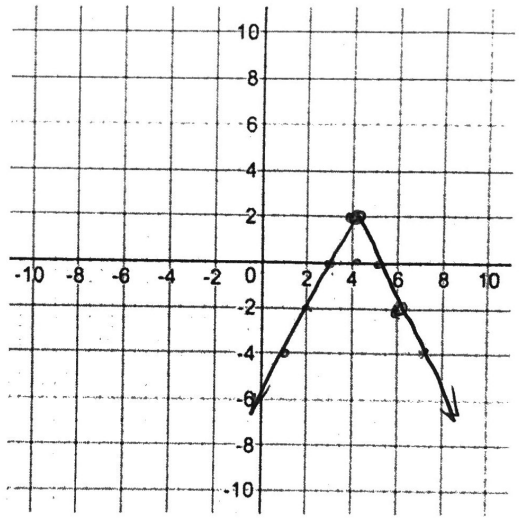
$(-1, -8)$

Axis of Symmetry:

$x = -1$



4. $f(x) = -2|x - 4| + 2$



Descriptions of Transformations:

right 4
up 2
reflect over x axis
vertical stretch

Vertex:

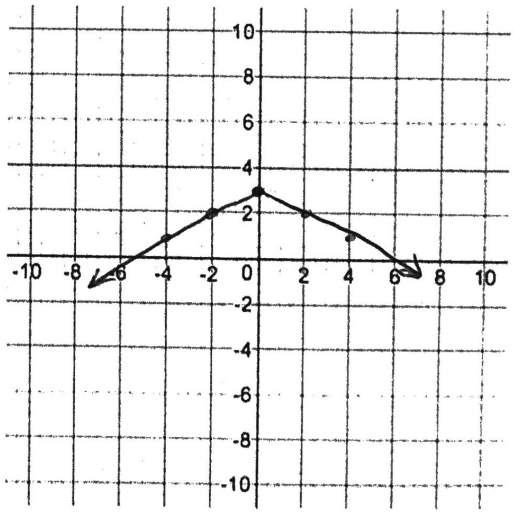
(4, 2)

Axis of Symmetry:

x = 4

Graph the function in the coordinate plane. Then analyze the aspects of the graph and identify any transformations that occur in relation to the parent function $f(x) = |x|$.

3. $f(x) = -\frac{1}{2}|x| + 3$



Descriptions of Transformations:

up 3
vertical compression
reflect over x-axis

Vertex:

(0, 3)

Axis of Symmetry:

x = 0