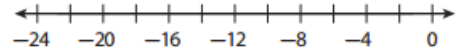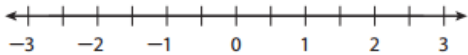**Math 2 – Solving Absolute Values Equations**
Assignment #19

Name:_____ Per:__

Solve each absolute value equation algebraically. Graph the solutions on a number line.
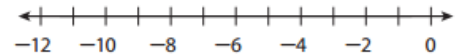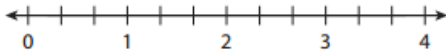
1) $|2x| = 3$

2) $\left|\frac{1}{3}x + 4\right| = 3$

(number line from -3 to 3)

(number line from -24 to 0)

3) $3|2x - 3| + 2 = 3$

4) $-8|-x - 6| + 10 = 2$

(number line from 0 to 4)

(number line from -12 to 0)

Isolate the absolute value expressions in the following equations to determine if they can be solved. If so, find and graph the solution(s). If not, write "no solution"

5) $|2(x + 5) - 3| + 2 = 6$

6) $-3|x - 3| + 3 = 6$

Solve the absolute value equations.

7) $|3x - 4| + 2 = 1$

8) $-5|-3x + 2| - 2 = -2$

9) Explain the Error While attempting to solve the equation $-3|x - 4| - 4 = 3$, a student came up with the following results. Explain the error and find the correct solution:

$$-3|x - 4| - 4 = 3$$

$$-3|x - 4| = 7$$

$$|x - 4| = -\frac{7}{3}$$

$$\pm|x - 4| = -\frac{7}{3}$$

$+(x - 4) = -\frac{7}{3}$ $\qquad\qquad$ $-(x - 4) = \frac{7}{3}$

$x = \frac{5}{3}$ $\qquad\qquad\qquad$ $x = -\frac{19}{3}$