MasterMath

Name _____

Date _____

Solving Absolute Value Equations and Inequalities

1. **Solve for x:**

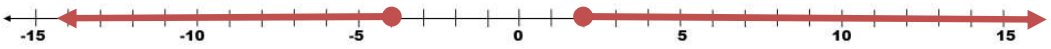
	x =
$\|x + 4\| = 12$	8 or -16
$2\|x - 3\| = 16$	11 or -5
$\|x + 12\| + 3 = 14$	-1 or -23
$2\|x + 6\| - 6 = 16$	5 or -17
$\|2x + 1\| = 1$	-1 or 0
$5\|x - 3\| = 15$	6 or 0
$\frac{1}{3}\|x + 6\| = 18$	48 or -60
$\frac{1}{4}\|x + 4\| = 3$	8 or -16
$\|x + 4\| = 20$	16 or -24

2. **Solve for x:**

	solution
$\|x + 4\| \geq 12$	$x \geq 8$ or $x \leq -16$
$2\|x - 3\| < 16$	$-5 < x < 11$
$\|x + 12\| + 3 < 14$	$-23 < x < -1$
$\|x + 6\| - 6 > 16$	$x > 16$ or $x < -28$
$\|2x + 5\| > 1$	$x > -2$ or $x < -3$
$5\|x - 3\| < 15$	$0 < x < 6$
$\frac{1}{3}\|x + 6\| < 18$	$-60 < x < 48$
$\frac{1}{4}\|x + 4\| \leq 3$	$-16 \leq x \leq 8$
$\|x + 4\| < 20$	$-24 < x < 16$

3. **Solve and graph:** $2|x + 1| - 3 \geq 3$

$x \geq 2$ or $x \leq -4$



4. **The average monthly temperature in a northern Canadian city is 1 degree Fahrenheit. The actual January temperature for that city (t = actual temperature) is never more than 5 degrees Fahrenheit warmer or colder. Solve $|t - 1| \leq 5$ to find the range of temperatures. Graph the solution.**

$-4 \leq t \leq 6$

5. **Solve and graph:** $3|x + 2| > 6$

$x > 0$ or $x < -4$