Name_____

ABSOLUTE VALUE EQUATIONS

Directions: *Absolute Value Equations* typically have two solutions. For example, with the equation $|x| = 9$, x could equal 9 or -9, because both numbers are 9 units away from zero on a number line. For the *absolute value equations* below, you will have to solve two different equations to find both solutions.

Examples: $-|x+7| = -10$

x + 7 = 10 or x + 7 = -10

x = 3 or **x = -17**

$\frac{-|2x+2|}{3} = -10$

2x + 2 = 30 or 2x + 2 = -30

x = 14 or **x = -16**

1) $-|x+6| = -7$

x = _____

2) $-|4x-16| = -64$

x = _____

3) $\frac{-|2x+2|}{5} = -10$

x = _____

4) $-|10+5x| = -45$

x = _____

5) $\frac{|5x+5|}{-5} = -10$

x = _____

6) $-|x+3| = -21$

x = _____

7) $\frac{|x+13|}{-2} = -20$

x = _____

8) $-|4x-2| = -30$

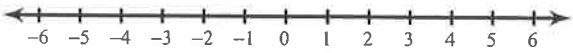
x = _____

9) $-|3+2x| = -67$

x = _____

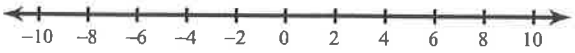
Compound inequalities → Solve and Graph

9b) $-1 + 5n > -26$ and $7n - 2 \leq 12$

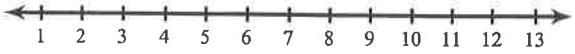


10) $-50 < 7k + 6 < -8$

11) $8x + 8 \geq -64$ and $-7 - 8x \geq -79$



12) $2n + 7 \geq 27$ or $3 + 3n \leq 30$



13) $-36 < 3p - 6 < -15$

14) $-1 - 10a < -1$ or $10 + 3a \leq -5$

15) $3n + 2 < -2 + 7n$ or $8n - 4 \leq 3n - 4$

16) $8r - 5 \geq 6r - 1$ or $4 + 4r \leq 3r - 3$