

Solving Equations

To solve an equation that contains a variable, find all of the values of the variable that make the equation true. Use the equality properties of real numbers and inverse operations to rewrite the equation until the variable is alone on one side of the equation. Whatever remains on the other side of the equation is the solution.

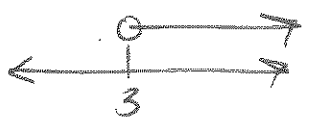

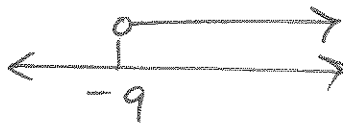
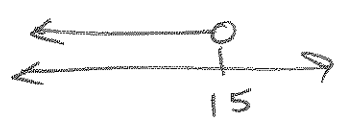
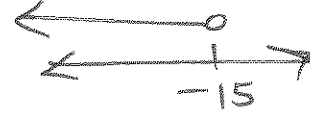
Examples: Solve each equation. Check your solution.

1. $4(3x-5) = -8 + 3x + 2$ $\frac{14}{9}$	2. $\frac{x}{3} + \frac{1}{4} = \frac{5x}{12}$ 3	3. $7n - 3(6 + 2n) = 3(n - 8)$ 3
4. $\frac{3}{4}(2x + 1) = 2$ $\frac{5}{6}$	5. $6 + 4x = 2 - \frac{1}{3}(6x + 9)$ $-\frac{7}{6}$	6. $24a - 22 = -4(1 - 6a)$ \emptyset

Solving Inequalities:

- Done the same way you solve equations.
- **Exception:** when you **multiply** or **divide** both sides of an inequality by a **negative** number, you must **change** the direction of the inequality symbol

Examples: Solve each inequality. Then graph the solution.

<p>1. $-3 > -3t + 6$</p> <p>$t > 3$</p> 	<p>2. $\frac{2}{3}w - 3 \leq 7$</p> <p>$w \leq 15$</p> 	<p>3. $8n + 2 - 10n < 20$</p> <p>$n > -9$</p> 
<p>4. $5 - 4m + 8 + 2m > -17$</p> <p>$m < 15$</p> 	<p>5. $x \leq \frac{2x - 15}{3}$</p> <p>$x < -15$</p> 	<p>6. $-5(k + 4) \geq 3(k - 4)$</p> <p>$k \leq -1$</p> 