2.5 Solving Inequalities

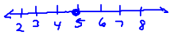
$2x + 5 = 15$ vs. $2x + 5 > 15$

$2x = 15 - 5$

$2x = 10$

$x = \frac{10}{2}$

$x = 5$



$2x > 15 - 5$

$2x > 10$

$x > \frac{10}{2}$

$x > 5$

$(5, \infty)$

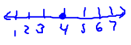
$-2x + 12 = 4$ vs. $-2x + 12 < 4$

$-2x = 4 - 12$

$-2x = -8$

$x = \frac{-8}{-2}$

$x = 4$

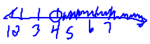


$-2x < 4 - 12$

$-2x < -8$

$x > \frac{-8}{-2}$

$x > 4$



$(4, \infty)$

Inequality Proporties on Golden Sheet

Solving an inequality is: Just like solving an equation

Except

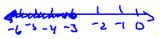
– Reverse the inequality when multiplying or dividing by a negative

Examples: Solve and graph.

1. $-3x \geq 9$

$x \leq \frac{9}{-3}$

$x \leq -3$



TP -2

$-2 \leq -3$

False

$(-\infty, -3]$

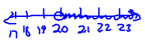
2. $\frac{x}{4} + 6 > 11$

$\frac{x}{4} > 11 - 6$

$\frac{x}{4} > 5$

$x > 5(4)$

$x > 20$



$(20, \infty)$

3. $11 + 2 \leq -y + 8y - 1$

$11 + 2 \leq 7y - 1$

$13 \leq 7y - 1$

$13 + 1 \leq 7y$

$14 \leq 7y$

$\frac{14}{7} \leq y$

$2 \leq y$

HOMEWORK

Worksheet HW 2.5
Solving Inequalities