
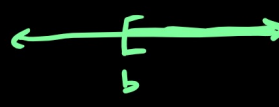
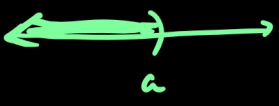
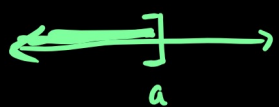

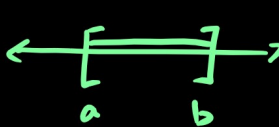



# WARMUP

Copy into notebook

Review of Interval Notation:

<u>Set-Builder</u>	<u>Number Line</u>	<u>Interval</u>
$\{x \mid x > b\}$		$(b, \infty)$
$\{x \mid x \geq b\}$		$[b, \infty)$
$\{x \mid x < a\}$		$(-\infty, a)$
$\{x \mid x \leq a\}$		$(-\infty, a]$
$\{x \mid a < x < b\}$		$(a, b)$
$\{x \mid a \leq x \leq b\}$		$[a, b]$
$\mathbb{R}$		$(-\infty, \infty)$

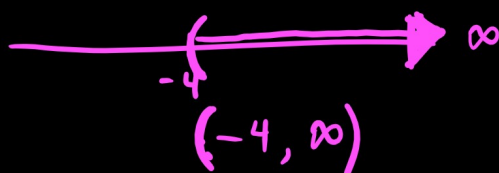
## Section 9.1

### Solving Linear Inequalities

ex:  $3x - 5 > -17$

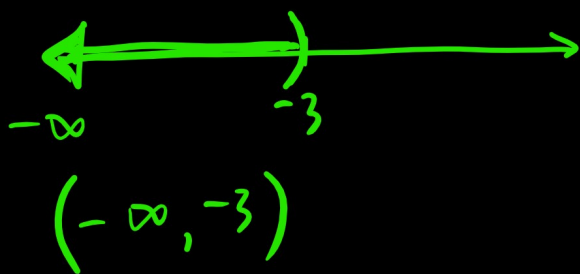
$$\frac{3x}{3} > \frac{-12}{3}$$

$$x > -4$$



$$\begin{array}{r}
 \text{ex: } -2x - 4 > x + 5 \\
 \underline{-x \quad -x} \\
 -3x - 4 > 5 \\
 \underline{+4 \quad +4} \\
 -3x > 9 \\
 \underline{-3 \quad -3} \\
 x < -3
 \end{array}$$

When you multiply or divide both sides by a negative, the inequality sign flips.



$$\text{ex: } \frac{6}{1} \left( \frac{x-4}{2} \right) \geq \left( \frac{x-2}{3} + \frac{5}{6} \right) \frac{6}{1}$$

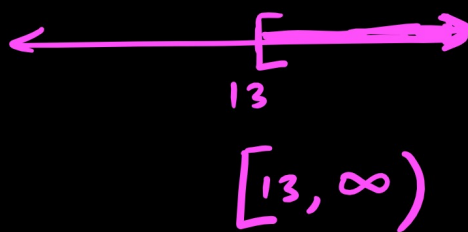
multiply both sides by LCD to get rid of fractions

$$\frac{3}{1} \frac{6}{1} \cdot \frac{x-4}{2} \geq \frac{2}{1} \frac{6}{1} \cdot \frac{x-2}{3} + \frac{6}{1} \cdot \frac{5}{6}$$

$$3(x-4) \geq 2(x-2) + 5$$

$$3x - 12 \geq 2x - 4 + 5$$

$$\begin{array}{r}
 3x - 12 \geq 2x + 1 \\
 \underline{-2x + 12} \quad \underline{-2x + 12} \\
 x \geq 13
 \end{array}$$



ex:

$$R(x) = 0.55x$$

revenue

$$C(x) = 10 + 0.05x$$

cost

$$P(x) = R(x) - C(x)$$

profit = revenue - cost

Break-Even Point is when  $P(x) = 0$

$$0.55x - (10 + 0.05x) = 0$$

$$0.55x - 10 - 0.05x = 0$$

$$0.5x - 10 = 0$$

$$\frac{0.5x}{0.5} = \frac{10}{0.5}$$

$$x = 20$$

sell 20 cups to break even

WORK ON 9.1 Worksheet