

12-22-17

Aim: SWBAT solve and graph inequalities.

HW: None

Do Now: Reverse the inequality symbol or not?

$$\frac{1}{3}y < 18$$

$$\textcircled{-6}x \geq 24$$

✓

$$\frac{3}{\textcircled{-8}} > 3$$

✓

$$2b \leq -14$$

Name \_\_\_\_\_

Date \_\_\_\_\_

### Reverse What???

Period \_\_\_\_\_

Rewrite the inequality statement so the variable is on the left.

$1 < x$ $x > 1$	$2 > x$ $x < 2$	$\frac{1}{3} \leq x$ $x \geq \frac{1}{3}$	$4 \geq x$ $x \leq 4$	$\frac{1}{5} \leq x$ $x \geq \frac{1}{5}$
$-1 < x$ $x > -1$	$-2 > x$ $x < -2$	$-\frac{1}{3} \leq x$ $x \geq -\frac{1}{3}$	$-4 \geq x$ $x \leq -4$	$-\frac{1}{5} \leq x$ $x \geq -\frac{1}{5}$

State if the inequality symbol will reverse. Highlight the part of the inequality statement that decides the reversal. *A neg. coefficient or denominator*

$x < 6$ N	$\ominus 2x \leq 4$ Y	$\frac{x}{5} \geq -3$ N	$\ominus \frac{x}{8} > -2$ Y	$-1 < x$ N
$\ominus x < 6$ Y	$2x \leq 4$ N	$\frac{x}{\ominus 5} \geq -3$ Y	$\frac{x}{8} > -2$ N	$1 < \ominus x$ Y
$\ominus x < -6$ Y	$2x \leq -4$ N	$\frac{\ominus x}{5} \geq 3$ Y	$\frac{x}{8} > 2$ N	$-1 < \ominus x$ Y
$x < -6$ N	$\ominus 2x \leq -4$ Y	$\frac{\ominus x}{5} \geq -3$ Y	$\frac{x}{\ominus 8} > 2$ Y	$1 < x$ N
$x + 1 < -6$ N	$\ominus 2x + 1 \leq -4$ Y	$\frac{x}{5} + 1 \geq -3$ N	$2x + 3x - 1 \leq -4$ $5x - 1 \leq -4$ N	$2(x - 1) \leq -4$ $2x - 2 \leq -4$ N
$x - 1 < -6$ N	$2x - 1 \leq -4$ N	$\frac{\ominus x}{5} - 1 \geq -3$ Y	$2x - 3x - 1 \leq -4$ $\ominus x - 1 \leq -4$ Y	$-2(x - 1) \leq -4$ $\ominus 2x + 2 \leq -4$ Y

Create 3 inequality statements that would need the inequality symbol reversed for the final answer.

$\frac{x}{\ominus 8} > 3$        $-3x > 4$        $-x < 32$

*A negative sign is on the variable term.*

Name \_\_\_\_\_

Date \_\_\_\_\_

**Solving Inequalities**

Period \_\_\_\_

Solve and graph.

$\begin{array}{l} R \quad \frac{-x < 6}{-1 \quad -1} \\ x > -6 \end{array}$	$\begin{array}{l} R \quad \frac{-2x \leq 4}{-2 \quad -2} \\ x \geq -2 \end{array}$	$\begin{array}{l} R \quad \frac{x \geq -3 \cdot 5}{5} \\ x \geq -15 \end{array}$	$\begin{array}{l} R \quad \frac{-x}{8} > -2 \cdot -8 \\ x < 16 \end{array}$
$\begin{array}{l} R \quad \frac{-x < -6}{-1 \quad -1} \\ x > 6 \end{array}$	$\begin{array}{l} \frac{2x \leq 4}{2 \quad 2} \\ x \leq 2 \end{array}$	$\begin{array}{l} R \quad \frac{x \geq -3 \cdot -5}{-5} \\ x \leq 15 \end{array}$	$\begin{array}{l} \frac{x}{8} > -2 \cdot \frac{8}{1} \\ x > -16 \end{array}$
$\begin{array}{l} R \quad \frac{1 < -x}{-1 \quad -1} \\ -1 > x \end{array}$	$\begin{array}{l} \frac{2x \leq -4}{2 \quad 2} \\ x \leq -2 \end{array}$	$\begin{array}{l} R \quad \frac{-x \geq 3 \cdot -5}{5} \\ x \leq -15 \end{array}$	$\begin{array}{l} \frac{x}{8} > 2 \cdot 8 \\ x > 16 \end{array}$

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