

12-21-17

Aim: SWBAT study the effects negatives have on an inequality.

HW: Finish WS

Do Now: Take out Page 150 and 151 homework assignments

Homework Pg. 150 # 2 - 10, 20

2. C

3. A

4. B

5. D

6. $x > -2$

all numbers greater than -2 .

7. $x \geq -5$

All numbers greater than or equal to -5 .

8. $x \leq 2$

All numbers less than or equal to 2 .

9. $x < 6$

All numbers less than 6 .10. The circle at -6 should be closed.

* 20. B

23?

~~$x - 3 > 20$~~

* $x - 3 \geq 20$

$20 < x - 3$

$x - 3 < 20$

Pg. 151 # 11-19, 21-29

$$\begin{array}{r} \textcircled{11} \quad 12 + p < 7 \\ -12 \quad -12 \\ \hline p < -5 \end{array}$$

$$\begin{array}{r} \textcircled{12} \quad k + 4 \leq 11 \\ -4 \quad -4 \\ \hline k \leq 7 \end{array}$$

$$\begin{array}{r} \textcircled{13} \quad n - 6 > 3 \\ +6 \quad +6 \\ \hline n > 9 \end{array}$$

$$\begin{array}{r} \textcircled{14} \quad 17 + r \geq 25 \\ -17 \quad -17 \\ \hline r \geq 8 \end{array}$$

$$\begin{array}{r} \textcircled{15} \quad -8 \geq m - 19 \\ +19 \quad +19 \\ \hline 11 \geq m \end{array}$$

$$\begin{array}{r} \textcircled{16} \quad -3.5 < w - 9 \\ +9 \quad +9 \\ \hline 5.5 < w \end{array}$$

$$\begin{array}{r} \textcircled{17} \quad 5.45 + b < -3.55 \\ -5.45 \quad -5.45 \\ \hline b < -9 \end{array}$$

$$\begin{array}{r} \textcircled{18} \quad \frac{2}{3} \leq p - 2\frac{1}{3} \\ +2\frac{1}{3} \quad +2\frac{1}{3} \\ \hline 3 \leq p \end{array}$$

$p \geq 3$

$$\begin{array}{r} \textcircled{19} \quad t + \frac{1}{4} > 5 \\ -\frac{1}{4} \quad -\frac{1}{4} \\ \hline t > 4\frac{3}{4} \end{array}$$

1, 2, 3, 4, 5, 6, 7, 8, 9

(21) 1 through 9

$$\begin{array}{r} -8 + x \leq 2 \\ +8 \quad +8 \\ \hline x \leq 10 \end{array}$$

(22) 6 through 9 $x \leq 10$

(23) 1 through 9

(24) 1 through 4

(25) $x + 6 < 10$

$$x < 4 \quad 4 > x$$

(26) $x > -10$ $-10 < x$



(27) $x > 19$ $19 < x$

(28) $x < -7$ $-7 > x$

* (29) Are $x < 2$ and $2 > x$ equivalent?

Yes. When x is less than 2, 2 is greater than x .

Equivalent Inequality: Inequalities that have the same solutions.

Write an equivalent inequality for each. (All you need to do is reverse the entire statement.)

1. $5 \leq x$

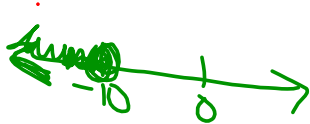
$x \geq 5$



If 5 is less than or equal to all numbers, then all numbers are greater than or equal to 5.

2. $-10 \geq x$

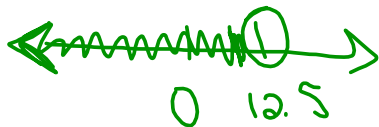
$x \leq -10$



If -10 is greater than or equal to all numbers, then all numbers are less than or equal to -10.

3. $12.5 > x$

$x < 12.5$



If 12.5 is greater than all numbers, it is also true that all numbers are less than 12.5.

Multiply each side of the inequality by 3.
Does the inequality statement stay true?

$$\begin{array}{l} 3 \cdot 6 < 9 \cdot 3 \\ 18 < 27 \quad \text{TRUE} \end{array}$$

Divide each side of the inequality by 3.
Does the inequality statement stay true?

$$\begin{array}{l} \frac{6}{3} < \frac{9}{3} \\ 2 < 3 \quad \text{TRUE} \end{array}$$

Is the final inequality true? (Yes or No) If not, what can be changed to make it true?

Multiply each side of the inequality by -3. Does the inequality statement stay true?

$$(-3)6 < 9(-3)$$

$$-18 < -27 \text{ FALSE}$$

$$-18 > -27 \text{ TRUE}$$

Divide each side of the inequality by -3. Does the inequality statement stay true?

$$\frac{6}{-3} < \frac{9}{-3}$$

$$-2 < -3 \text{ FALSE}$$

$$-2 > -3 \text{ TRUE}$$

Is the final inequality true? (Yes or No) If not, what can be changed to make it true?

The inequality symbol needs to reverse.

If you multiply or divide an inequality by a positive number, the symbol stays the same.

If you multiply or divide an inequality by a negative number, the symbol needs to flip.

a neg. coefficient
OR
a neg. denominator

Should the inequality symbol be switched?

$$-5 \geq 2 + x$$

N

$$9 \leq \frac{x}{4}$$

N

$$-8 + x \leq 2$$

N

$$-3x \leq 18$$

Y

$$\frac{x}{-8} \geq 9$$

Y

$$7x \leq 42$$

N

$$x - 4 \geq -2$$

N

$$-60 > -5x$$

Y

$$7 + x \leq 3$$

N

Name _____

Date _____

Reverse What???

Period ____

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

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

State if the inequality symbol will reverse. Highlight the part of the inequality statement that decides the reversal.

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

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