Pick two numbers and place them in the spaces to make a true statement.

$$\underset{+3}{5} < \underset{+3}{6}$$

Add 3 to both sides. Place the proper inequality inbetween.

$$8 < 9$$

Pick two numbers and place them in the spaces to make a true statement.

$$\underset{-5}{100} > \underset{-5}{1}$$

Subtract 5 from both sides. Place the proper inequality inbetween.

$$95 > -4$$

Pick two numbers and place them in the spaces to make a true statement.

$$\underset{\times 10}{11} < \underset{\times 10}{12}$$

Multipy both sides by 10. Place the proper inequality inbetween.

$$110 < 120$$

Pick two numbers and place them in the spaces to make a true statement.

$$\underset{\div 2}{2} < \underset{\div 2}{4}$$

Divide both sides by 2. Place the proper inequality inbetween.

$$1 < 2$$

Pick two numbers and place them in the spaces to make a true statement.

$6 > 1$

$\times -10 \qquad \times -10$

Multipy both sides by -10. Place the proper inequality inbetween.

$-60 < -10$

Pick two numbers and place them in the spaces to make a true statement.

$20 < 30$

Divide both sides by -2. Place the proper inequality inbetween.

$-10 > -15$

The following steps DON'T affect the direction of the inequality:

- Adding the same number to both sides
- Subtracting the same number from both sides
- Multiplying both sides by the same positive number
- Dividing both sides by the same positive number

The following steps **DO** affect the direction of the inequality:

- Multiplying both sides by the same negative number
- Dividing both sides by the same negative number

Why does multiplying or dividing each side of an inequality by a negative number make the Inequality Symbol FLIP?

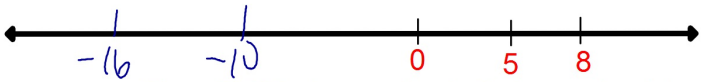
$5 < 8$

If you multiplied both sides by POSITIVE 2
2(8) would still be further to the right of 2(5) so

2(5) 2(8) → $10 < 16$

If, instead, you multiply both sides by -2.

5(-2) 8(-2) → $-10 > -16$



Now 5(-2) is the one that is further to the right which means that it is now the larger number.

When solving INEQUALITIES:

- Take all the same steps as if it were an EQUATION
- If you multiply or divide both sides by a NEGATIVE you must FLIP the inequality symbol.

This is usually the last step.

Solve this inequality:

$x + 6 - 5x - 8 > 26$

$-4x - 2 > 26$
$+2 \quad +2$

Answer:

$\frac{-4x}{-4} > \frac{28}{-4}$

$x < -7$

Solve this inequality:

$9 - 5(2c + 8) + 3c \leq 70$

$9 - 10c - 40 + 3c \leq 70$

$-7c - 31 \leq 70$
$+31 \quad +31$

$-7c \leq 101$

$\frac{-7c}{-7} \leq \frac{101}{-7}$

Answer: $c \geq -\frac{101}{7}$

You can now finish Hwk #15

Sec 3-4

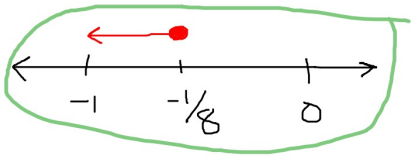
Pages 155-157

Problems 2, 3, 6, 13, 15, 27, 36, 67, 74

Solve this inequality and graph the solution.

$\frac{2}{2}\cdot\frac{5}{24}\ \frac{8}{8}\cdot\frac{11}{6}G \geq \frac{7}{16}\ \cdot\frac{3}{3}$

$\frac{10}{48} - \frac{88}{48}G \geq \frac{21}{48}$



$10 - 88G \geq 21$

$-10 \qquad -10$

$\frac{-88G}{-88} \geq \frac{11}{-88}$

$G \leq -\frac{1}{8}$