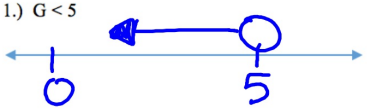
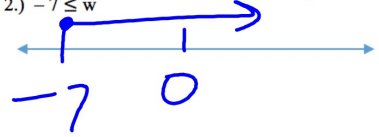
Graph each inequality.

1.) $G < 5$



2.) $-7 \leq w$

$w \geq -7$



Write an inequality for each statement.

3.) Michael needs at least 10 points to win the game.

$x \geq 10$

4.) The minimum height to get into the ride is 48 inches.

$h \geq 48$

5.) The van can hold no more than 8 passengers.

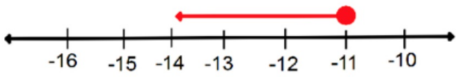
$m \leq 8$

6.) Amani can invite up to 30 people to her birthday party.

$30 \geq x$

$x \leq 30$

7.) Write an inequality for the following graph.



$x \leq -11$

$-11 \geq x$

1.) Solve and graph the solution:

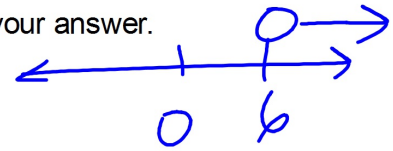
$4 + 3x - 7 > 15$

Check your answer.

$-3 + 3x > 15$

$3x > 18$

$x > 6$



2.) Solve and graph the solution:

$7 - 2x > 23$ Check your answer.

$-7 \quad -7$

$-2x > 16$

$x < -8$

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

$10 < 20$

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

$13 < 23$

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

$8 > 4$

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

$3 > -1$

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

$4 < 10$

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

$4 < 100$

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

$2 < 3$

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

$1 < \frac{3}{2}$

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

$74 > -12$

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

$-148 < 24$

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

$1022 < 2404$

Divide both sides by -1. Place the proper inequality inbetween.

$-1022 > -2404$

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

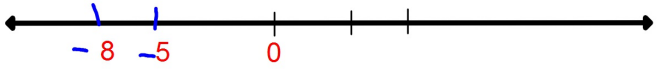
- Adding the same number to both sides
- Subtracting the same number from both sides
- Multiplying both sides by the same positive number
- Dividing both sides by the same positive number

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 and dividing each side of an inequality by a negative number make the Inequality Symbol FLIP?

$5 < 8$



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.

1.) Solve this inequality.

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

$-4x - 2 > 26$

$-4x > 28$

$x < -7$

2.) Solve this inequality.

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

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

$-31 - 7c \leq 70$

$-7c \leq 101$

$c \geq \frac{101}{-7}$ -14.4

3.) Solve this inequality.

$\left(\frac{5}{24} - \frac{11}{6}G\right)^{48} \geq \left(\frac{7}{16}\right)^{48}$

$10 - 88G \geq 21$

$-88G \leq 11$

$G \leq \frac{11}{-88}$ -0.125

4.) Solve this inequality.

$9 + r - 25 \leq 5r$

$\frac{-16}{4} \leq \frac{4r}{4}$

$-4 \leq r$ $\quad r \geq -4$

5.) Solve this inequality.

$6w - 2(2w - 2) - 10 \leq 5w - 8 - 3w + 1$

$6w - 4w + 4 - 10 \leq 5w - 8 - 3w + 1$

$2w - 6 \leq 2w - 7$

$-6 \leq -7$

$\emptyset$

6.) Solve this inequality.

$9m + 21 - 12m + 3 < -6m + 24$

$-3m + 24 < -6m + 24$

$3m + 24 < 24$

$3m < 0$

$m < 0$

7.) Solve this inequality.

$7b + 3 - 5b + 10 > 11 + 2(b - 4)$

$2b + 13 > 11 + 2b - 8$

$2b + 13 > 3 + 2b$

$13 > 3$ IR

8.) Solve this inequality.

$-4(2P - 5) > 32$

$-8P + 20 > 32$

$-8P > 12$

$P < -\frac{12}{8}$ $P < -1.5$

You can now finish HW #22 - due Thursday!

Sec. 3-4

Pages 155-157

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

IXL #8 - K.3 & K.4 due Friday at 6pm!