

READ THIS!!!**(If you didn't see my email)**

- › I am giving you an extra day on the homework. We will work much more on solving today and I would like you to go back and "improve" the ones that were difficult. In addition, **the instructions did not say to graph the solution, but I would like you to graph them!!!**

Warmup

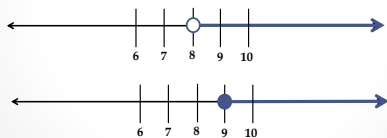
Created by Mr. Lischwe

8/(Michael Jordan's original number)1) Are these two statements the same? Write a good explanation for why or why not.

- "All numbers greater than 8"
- "All numbers greater than or equal to 9"

Graphing Inequalities

- If I have " $x > 8$ ", could I just graph that by putting a **closed** circle at 9?



**BACK TO YOUR
INEQUALITIES NOTES
PAGE!**

$$8x + 4 > 10x + 20$$

METHOD ONE: Solve by subtracting $8x$ from both sides first

METHOD TWO: Solve by subtracting $10x$ from both sides first

$$-4x + 14 > -7x - 19$$

GROUP ONE: Solve by adding $4x$ to both sides first

GROUP TWO: Solve by adding $7x$ to both sides first

What did we learn?

- You can avoid having to divide by a negative number and flipping the sign if you make sure the "x" term ends up positive

Solve the inequality. Graph the solution set.

$$4x + 25 - 8x \leq 20 - x - 7$$

$$x \geq 4$$


$$10 - 1/2(2x + 8) > 4x + 14$$

$$x < -2$$


Solve the inequality.

$$2x - 7 \leq 5 + 2x$$

$$2x - 7 \leq 5 + 2x$$

$$\begin{array}{r} -2x \quad -2x \\ \hline -7 \leq 5 \end{array}$$

The inequality $2x - 7 \leq 5 + 2x$ is an identity. All values of x make the inequality true. Therefore, all real numbers are solutions.

Solve the inequality.

$$2(3y - 2) - 4 \geq 3(2y + 7)$$

$$2(3y - 2) - 4 \geq 3(2y + 7)$$

$$2(3y) - 2(2) - 4 \geq 3(2y) + 3(7)$$

$$6y - 4 - 4 \geq 6y + 21$$

$$6y - 8 \geq 6y + 21$$

$$\begin{array}{r} -6y \quad -6y \\ \hline -8 \geq 21 \end{array}$$

$$-8 \geq 21 \times$$

No values of y make the inequality true. There are no solutions.

Group Discussion: Real-World Inequalities

- Think of some real-world situations in which you would write an **inequality** instead of an equation. Then write the inequality that represents your situation.
- Your group is your group of 3, A1 – A3, A4 – A6, etc.
- Please all agree on your situations. I will call on a **random person** from your group to share.

Write an inequality

- ▶ "Your suitcase must weigh less than 50 pounds."
- ▶ "You must be at least 5 feet tall to ride the ride."
- ▶ "You must be 12 or younger to order from the children's menu."
- ▶ "Joe hit 15 home runs. In order to win the Home Run Derby, Ted must hit more home runs than Joe."

Writing more complicated inequalities

For each situation, define a variable and write an inequality.

- Each ticket at the fair costs \$2.00. Jill has \$36.00 to spend on tickets.

$$2t \leq 36 \quad \text{or} \quad t \leq 18$$

- An elevator can hold a maximum of 2000 lbs. The total weight of the occupants of the elevator is 1850 lbs. Another person gets on. Write an inequality where w represents the acceptable weight of the person.

$$1850 + w \leq 2000 \quad \text{or} \quad w \leq 150$$

- Sarah ran the race in 25.24 seconds. Laura was more than 3.09 seconds slower than Sarah.

$$t - 3.09 > 25.24 \quad \text{or} \quad t > 28.33$$

Real-World Example

- Jack and Jill both planted trees. Jack's tree was 6 feet tall when he planted it, and grew 1.5 feet per year. Jill's tree was 3.5 feet when she planted it, and grew 2 feet per year.
- Write and solve an inequality where y represents the numbers of years where Jack's tree is taller than Jill's tree. Interpret your solution.

Homework
pg. 77(1-6),
pg. 79(21)