

## Math 7H - Unit 2c

## Day 2 - Solving Inequalities by Adding or Subtracting

## Lesson Objectives:

- I can solve an one-step inequalities by adding.
- I can solve an one-step inequalities by subtracting.
- I know how to show work when solving inequalities.

**Addition Property of Inequality:** You can add the same number to both sides of an inequality, and the statement will remain true.

If  $a < b$  or  $a > b$ , then  $a + c < b + c$  or  $a + c > b + c$ .

**Addition Prop ( $\neq$ )**

**Subtraction Property of Inequality:** You can subtract the same number from both sides of an inequality, and the statement will remain true.

If  $a < b$  or  $a > b$ , then  $a - c < b - c$  or  $a - c > b - c$ .

**Subtraction Prop ( $\neq$ )**

These properties are also true from  $a \leq b$  and  $a \geq b$ .

Solve each inequality. Don't forget to show work, give properties as reasons, and graph your solution on a number line.

1.  $y + 5 > 11$   
 $\frac{-5 - 5}{y} > \frac{11 - 5}{6}$   
 $y > 6$   
 Subtraction Prop ( $\neq$ )

2.  $-21 \geq d - 8$   
 $\frac{+8 + 8}{-13 \geq d}$   
 $d \leq -13$   
 Addition Prop ( $\neq$ )

Solve each inequality. Don't forget to show work, give properties as reasons, and graph your solution on a number line.

3.  $h - \frac{3}{2} < 5$   
 $\frac{+ \frac{3}{2} + \frac{3}{2}}{h} < \frac{10 + \frac{3}{2}}{\frac{13}{2}}$   
 $h < \frac{13}{2}$   
 Addition Prop ( $\neq$ )

4.  $f + 3\frac{1}{2} > 3$   
 $\frac{-3\frac{1}{2} - 3\frac{1}{2}}{f} > \frac{6 - 3\frac{1}{2}}{-\frac{1}{2}}$   
 $f > -\frac{1}{2}$   
 Subtraction Prop ( $\neq$ )

Katya has \$12 to take to the bowling alley. If the shoe rental costs \$3.75, what is the most she can spend on games and snacks?

Let  $X = \$ \text{spent on games \& snacks}$   
 $X + 3.75 \leq 12.00$   
 $\frac{-3.75 - 3.75}{X} \leq \frac{8.25}{8.25}$   
 $X \leq 8.25$   
 Subtraction Prop ( $\neq$ )

## Homework

### Solving Inequalities by Adding & Subtracting WKS

\* Individual Think Time \*



What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

