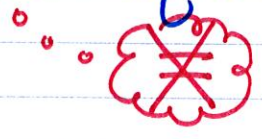


# Supplemental Lesson 1

## 11/26/12 Inequalities (Graphing)

Inequality: 2 expressions that are NOT equal

ex)  $2 \cdot 5 \neq 3 + 9$



$<$	$>$	$\leq$ <span style="color: red;">( <math>&lt; =</math> )</span>	$\geq$ <span style="color: red;">( <math>&gt; =</math> )</span>
"is less than"	"is greater than"	"is less than OR equal to"	"is greater than OR equal to"
"is fewer than"	"is more than"	"is no more than"	"is no less than"
	"exceeds"	"is at most"	"is at least"

Write the inequality for each sentence.

Find the inequality sign's words first to split the inequality into 2 expressions

ex) You must be at least forty inches tall to ride the roller coaster.

$a \geq 40$

ex) A savings account increased by \$70 is no more than \$400.

$s + 70 \leq 400$

State whether the inequality is true or false.

ex)  $b + 12 \leq 15$  ;  $b = -1$   
 $-1 + 12 \leq 15$   
 $11 \leq 15$  True

- ① Substitute for the variable.
- ② Simplify where possible
- ③ Decide if your answer is True or False.



# Graph the inequality on a number line 😊

ex)  $n \leq -1$



Use closed dots for the  $\leq$  and the  $\geq$  because the number is included

① Draw a point at the given location

② Decide whether the numbers to the right or left of the point make the inequality true.

③ Then, shade it in with an arrow.

ex)  $x > 2$



Use open dots for the  $>$  and the  $<$  because the number is NOT included

Supplemental Lesson 2

11/28/12 Solving Inequalities (with Addition & Subtraction)

Solve:

ex)  $4 + n \leq 12$

$\frac{-4 \quad -4}{n \leq 8}$

Still ask yourself: Why isn't the variable by itself?

the inequality stays the same ☺

ex)  $b - 5 > -7$

$\frac{+5 \quad +5}{b > -2}$

Don't forget: 2 negatives make a positive ☺

ex)  $21 < n + 18$

$\frac{-18 \quad -18}{3 < n}$

ex)  $14 > w + (-2)$

$\frac{+2 \quad -(-2)}{16 > w}$

FIVE STAR

FIVE STAR

FIVE STAR

FIVE STAR



# Supplemental Lesson 2

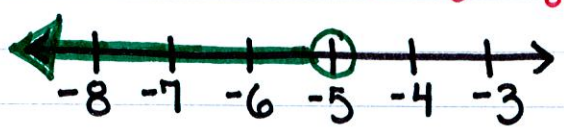
## 11/29/12 Solving Inequalities (with multiplication and division)

Solve. (show steps ☺) Then graph.

ex)

$$\frac{7y}{7} < \frac{-35}{7}$$

$$y < -5$$



Still ask yourself: "Why isn't the variable by itself?"

Is this inequality sign an open dot or a closed dot?

ex)

$$(9)2 \geq \frac{y}{9} (9)$$

$$18 \geq y \text{ or } y \leq 18$$



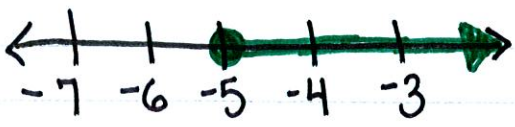
It helps with graphing to rewrite the inequality with the variable on the left.

### The Exception

ex)

$$\frac{-20t}{-20} \leq \frac{100}{-20}$$

$$t \geq -5$$



When you multiply or divide by a negative number, you must flip the inequality sign!

ex)  $\left(\frac{-3}{2}\right) \frac{-2}{3} x > 12 \left(\frac{-3}{2}\right)$   
 $x < -18$

