

## Writing and Graphing Inequalities

### Expressions vs. Equations vs. Inequalities

<u>Expression:</u>	<u>Equation:</u>	<u>Inequality:</u>
simplify	solve	solve
no equal sign	has an equal sign	$<, >, \leq, \geq$ symbols

### Inequality Symbols

greater than	less than
greater than or equal to	less than or equal to

### Inequality Vocabulary

$>$	$\geq$	$\leq$	$<$

Greater than	At most	Maximum	Minimum
No less than	Above	No more than	
More than	At least	Fewer than	Is less than

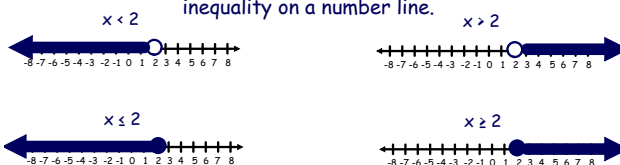
### Write an inequality for each situation described.

Chicago Blackhawks tickets are no more than \$1,666.67  
(Let  $b$  = Blackhawks price)

Carolina Hurricane tickets are a minimum of \$30.  
(Let  $h$  = Hurricanes tickets)

### Graphing Inequalities

An inequality solution is more than just one number, it is a range of values. To show the full solution, we graph the inequality on a number line.



### Graphing Inequalities

#### OPEN CIRCLE

- the number is NOT part of the solution
- used with the  $<$  and  $>$  symbols
- $x > 2$      $5 < y$      $z < -3.5$

#### CLOSED CIRCLE

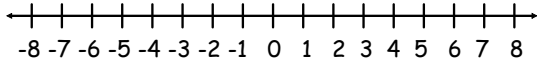
- the number IS part of the solution
- used with the  $\leq$  and  $\geq$  symbols
- $x \geq 1/2$      $y \leq -1$      $93 \geq z$

#### SHADING:

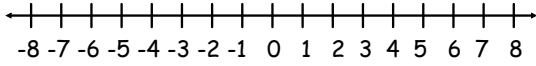
- choose a value on the number line other than number provided
- substitute the value into the inequality
- is the inequality true?
  - $>$  if yes, shade in the direction of that number
  - $>$  if no, shade in the opposite direction of that number

### Graph the Solution

$d$  is greater than or equal to 8

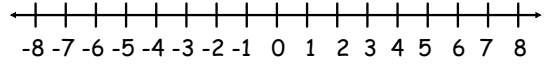


$y < 3$

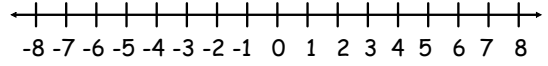


### Graph the Solution

$f \leq -4$



$-1 < g$



### Writing Inequalities from a Graph



1st Step: Choose a variable.

2nd Step: Record the number below the circle.

3rd Step: Determine the correct inequality symbol.

### Writing the Graph's Inequality



### Multiplication and Division Properties of Inequalities

If you multiply or divide each side of an inequality by a \_\_\_\_\_ number, you leave the inequality symbol the \_\_\_\_\_.

$$\underline{\quad} < \underline{\quad} \text{ so } \underline{\quad}(2) < \underline{\quad}(2)$$

If you multiply or divide each side of an inequality by a \_\_\_\_\_ number, you \_\_\_\_\_ the inequality symbol.

$$\underline{\quad} > \underline{\quad} \text{ so } \underline{\quad}(-2) < \underline{\quad}(-2)$$

\*This is important to know when you begin solving inequalities!

## Attachments

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mental math division.ppt