A < B

C > D

4 < 11

3 > -9

-2 0

-6 > -9

Apr 11-9:31 AM

May 1, 2018

Mini-Lesson # 1 (TASK 1, 2 & 3)

6.3 Introduction to Linear Inequalities

FOCUS
- Write and graph inequalities.

We use an **inequality** to model a situation that can be described by a range of numbers instead of a single number. When one quantity is less than or equal to another quantity, we use this symbol: ≤
When one quantity is greater than or equal to another quantity, we use this symbol: ≥
Which of these inequalities describes the time, t minutes, for which a car could be legally parked?

$t > 30$
$t \geq 30$
$t < 30$
$t \leq 30$

Inequality signs
< less than
> greater than

t ≤ 30

≥

< >

Feb 6-11:15 PM

Symbols of Inequalities

SYMBOLS	MEANING
>	"IS GREATER THAN"
<	"IS LESS THAN"
≥	"IS GREATER THAN OR EQUAL TO"
≤	"IS LESS THAN OR EQUAL TO"

Feb 13-4:41 PM

Investigate

2

Define a variable and write an inequality for each situation.

a)

b)

c)

d)

Feb 6-11:19 PM

Connect

Don't need to copy

Here are some examples of inequality statements:

- One expression is less than another; a is less than 3: $a < 3$
- One expression is greater than another; b is greater than -4: $b > -4$
- One expression is less than or equal to another; c is less than or equal to $\frac{3}{4}$: $c \leq \frac{3}{4}$
- One expression is greater than or equal to another; d is greater than or equal to -5.4: $d \geq -5.4$

Many real-world situations can be modelled by inequalities.

Feb 6-11:21 PM

T=temp $T < -5°C$

Example 1 Writing an Inequality to Describe a Situation

Define a variable and write an inequality to describe each situation.

a) Contest entrants must be at least 18 years old. a=age $a \geq 18$

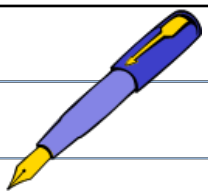
b) The temperature has been below $-5°C$ for the last week.

c) You must have 7 items or less to use the express checkout line at a grocery store. $e \leq 7$

~~d) Scientists have identified over 400 species of dinosaurs.~~

Feb 6-11:32 PM

NOTES:



A **linear equation** is true for only one value of the variable.

ex: $2b + 6 = 14$

$2b + 6 - 6 = 14 - 6$

$2b = 8$

$b = 4$ (the only answer for b is 4)

A **linear inequality** may be true for many values of the variable.

$2b + 6 \leq 14$

$2b + 6 - 6 \leq 14 - 6$

$2b \leq 8$

$b \leq 4$ (any number less than 4 and 4 will make the inequality true)

The solution of an inequality is any value of the variable that makes the inequality true.

Feb 13-4:41 PM

Example 2 Determining Whether a Number Is a Solution of an Inequality

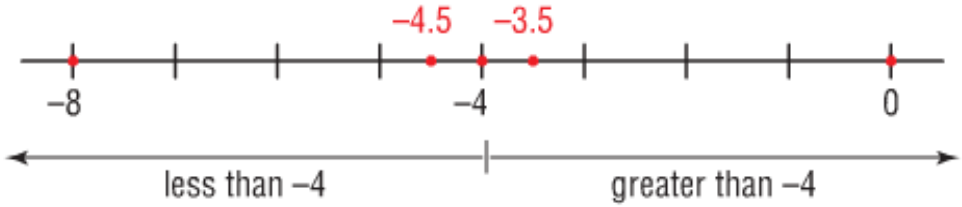
Is each number a solution of the inequality $b \geq -4$? Justify the answers.

a) -8 ✗ b) -3.5 ✓ c) -4 ✓ d) -4.5 ✗ e) 0 ✓

What strategy could we use to answer this question?

Method 1

Use a number line. Show all the numbers on a line.



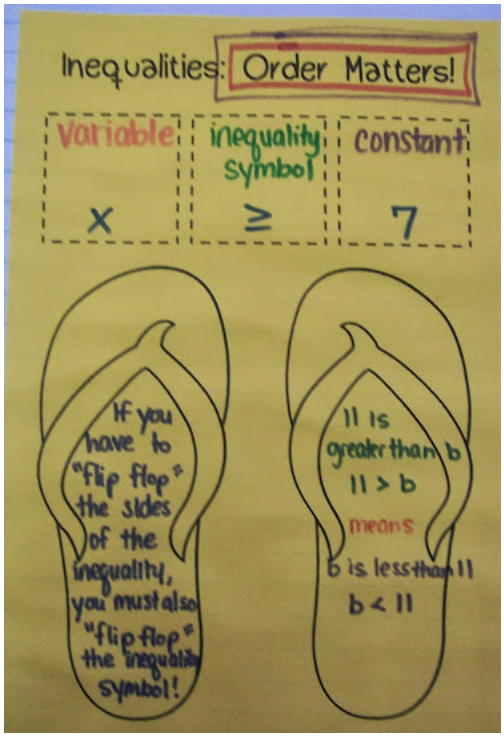
Method 2 Much Easier strategy to use.....

Use substitution. Substitute each number for b in the inequality $b \geq -4$.

$-8 \geq -4$?

Feb 13-9:50 PM

Glue on to a piece of paper and include in this week's TASK sheet!



$x \geq 4$ $4 \leq x$

8 $4 \leq 8$

Apr 13-9:08 AM