

Name: _____

Date: _____

INTERVAL NOTATION! ☺

We will often want to talk about **continuous segments** of the **real number line**. We've already done work with this in the last lesson using what is known as **inequality or set-builder notation**. Today we will see a very simple way of showing these segments.

Exercise #1: For each of the following, graph the portion of the number line described by the inequality and then write the equivalent using **interval notation**.

★ (a) $-3 \leq x \leq 5$ $x \geq -3$ $x \leq 5$

Equivalent Interval Notation: $[-3, 5]$

$x > -4$ $x \leq 8$

★ (b) $-6 < x < 4$ $x > -6$ $x < 4$ ★ compound inequalities

Equivalent Interval Notation: $(-6, 4)$ infinity

★ (c) $-4 < x \leq 8$

Equivalent Interval Notation: $(-4, 8]$

(d) $x \geq 4$

Equivalent Interval Notation: $[4, \infty)$

(e) $x < 5$

Equivalent Interval Notation: $(-\infty, 5)$

★ (f) $-4 < x$ $x > -4$

Equivalent Interval Notation: _____

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One of the great advantages of **interval notation** is that we essentially need to know a starting value, an ending value and then whether they are included or not.

★ **Exercise #2:** Which of the following represents the equivalent interval to $-12 \leq x < 4$?

- (1) $(-12, 4)$ (3) $[-12, 4)$
- (2) $(-12, 4]$ (4) $[-12, 4]$

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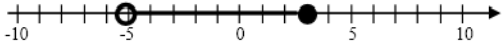
Date: _____

**INTERVAL NOTATION...
HOMEWORK**

HW

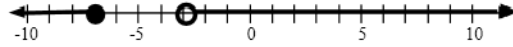
1. Write sets using **interval notation** for the sections of the number lines shown graphed below.

★(a)



Equivalent Interval Notation: _____

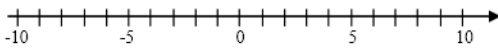
★(b)



Equivalent Interval Notation: _____

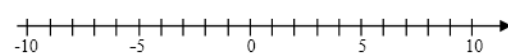
2. For each of the following, graph the portion of the number line described by the inequality and then write the equivalent using **interval notation**.

★(a) $x > 4$



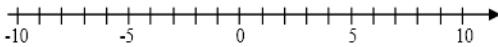
Equivalent Interval Notation: _____

★(b) $-2 \leq x < 7$



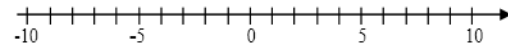
Equivalent Interval Notation: _____

~~(c)~~ $-3x + 2 < 17$



Equivalent Interval Notation: _____

~~(d)~~ $2x + 5 \geq -6$



Equivalent Interval Notation: _____