

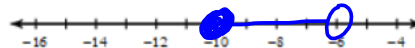
Name: _____ Algebra 9 Unit 2 Lesson 12

Interval Notation

DO NOW ~ Friday 12/13

Solve and graph the following compound inequality:

$$\begin{array}{r}
 -66 \leq x + 7r < -38 \\
 -4 \quad -x \quad -4 \\
 \hline
 -70 \leq 7r < -42 \\
 \textcircled{7} \quad \textcircled{7} \quad \textcircled{7} \\
 \hline
 -10 \leq r < -6
 \end{array}$$

AND

Classwork

Interval Notation

CLOSED DOT $\leq$ $\geq$ 

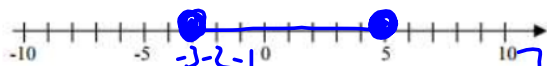
[]

OPEN DOT $<$ $>$

()

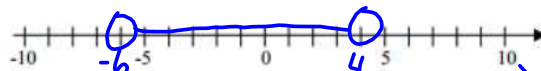
ALSO use for positive and negative infinity ∞

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) $-3 \leq x \leq 5$ 

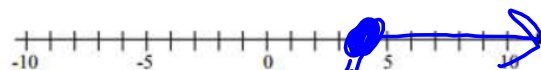
Equivalent Interval Notation:

[-3, 5]

(b) $-6 < x < 4$ 

Equivalent Interval Notation:

(-6, 4)

(d) $x \geq 4$ 

Equivalent Interval Notation:

[4, ∞)

DO NOW ~ Monday 12/16

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) $[-12, 4]$

$$[-12, 4)$$

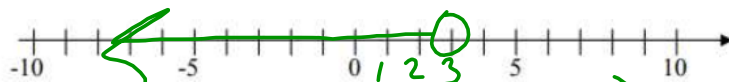


Classwork

$$[\bullet] (0)$$

Exercise #3: Solve the inequality given below for all values of x . Graph the solution on the number line given and state the solution set using interval notation.

$$\begin{array}{r} 12 - 4x > 0 \\ -12 \quad | \quad -12 \\ \hline -4x > -12 \\ \hline -4 \quad | \quad -4 \\ \hline x < 3 \end{array}$$

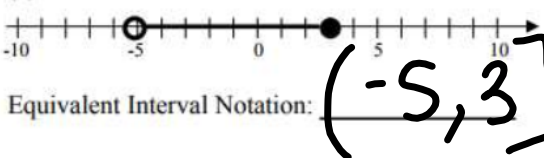


Interval Notation:

$$(-\infty, 3)$$

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

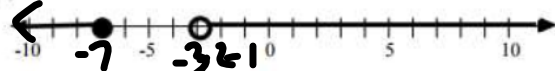
(a)



Equivalent Interval Notation:

$$(-5, 3]$$

(b)

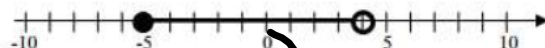


Equivalent Interval Notation:

$$(-\infty, -7] \text{ or } (-3, \infty)$$

Aidan wrote the interval $(-5, 4]$ and claimed it was equivalent to the graph below. Explain what he did wrong and correct his mistake.

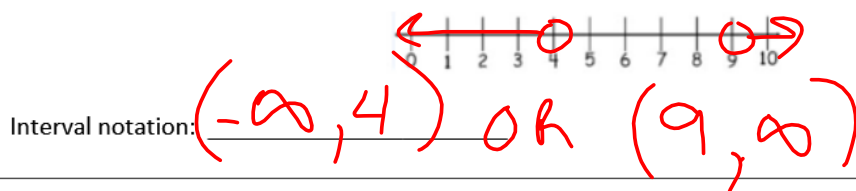
$$(-5, 4]$$



$$[-5, 4)$$

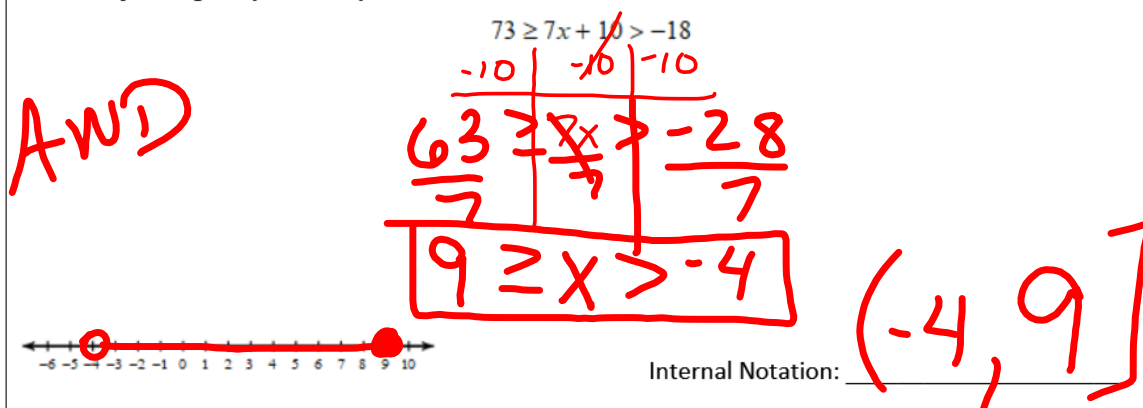
DO NOW ~ ~~Tuesday 12/17~~

Wednesday 12/18

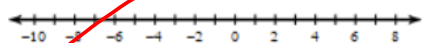
Write the following inequality in interval notation: $x < 4$ or $x > 9$ Use a number line to help you.

Classwork

A review of solving compound inequalities and interval notation.



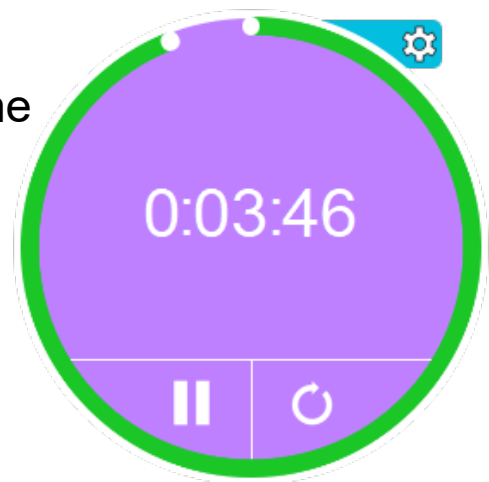
~~$-6b + 3 \leq -15 \text{ or } 3 - 8b \geq 43$~~



Interval Notation: _____

To earn your full participation point for the Do Now be sure to have completed all of the following by the time is up:

- 1) Be in your seat
- 2) Take out your calculator or grab one
- 3) Have last night's homework out
- 4) Complete the do now



DO NOW ~ ~~Wednesday 12/18~~

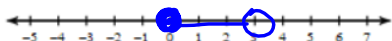
Thursday 12/19

Solve and graph the following compound inequality, graph its solution and write it in interval notation.

$$9 \leq 4r + 9 < 21$$

$$\begin{array}{r|l|l} -9 & -9 & -9 \\ \hline 0 & 4r & 12 \\ \hline 4 & 4 & 4 \end{array}$$

$$0 \leq r < 3$$



Interval Notation:

[0, 3)



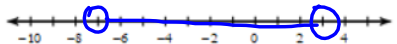
Classwork

Solve and graph the following compound inequalities, graph its solution and write it in interval notation.

$$-41 < -6 + 5n < 9$$

$$\begin{array}{r|l|l} +6 & +6 & +6 \\ \hline -35 & 5n & 15 \\ \hline 5 & 5 & 5 \end{array}$$

$$-7 < n < 3$$



Interval Notation:

(-7, 3)

$$10r + 17 \leq 51$$

$$\begin{array}{r|l} -17 & -17 \\ \hline 10r & 34 \\ \hline 10 & 10 \end{array}$$

$$r \geq 3.4$$

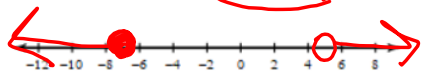
$$10r + 1 > 51 \text{ or } 3r + 3 \leq -18$$

OR

$$3r + 3 \leq -18$$

$$\begin{array}{r|l} -3 & -3 \\ \hline 3r & -21 \\ \hline 3 & 3 \end{array}$$

$$r \leq -7$$



Interval Notation:

$$(-\infty, -7] \text{ OR } (5, \infty)$$

$$r \leq -7$$

Mrs. Ferreri's Station ~ Interval Notation Task Cards

Update Foldable with Interval Notation symbols.

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.
11.	12.
13.	14.
15.	16.
17.	18.
19.	20.
21.	22.
23.	24.

Continue onto next page.

Choose which MATHO board you would like.

MATHO

$(-\infty, 2) \text{ or } [3, \infty)$	$[-4, 5)$	$(-\infty, -2) \text{ or } (0, \infty)$	$(-1, 3)$	$(-\infty, -2]$
$[-4, -1]$	$(-\infty, 0] \text{ or } (4, \infty)$	$[-1, \infty)$	$(-\infty, -3)$	$(-\infty, 0] \text{ or } (4, \infty)$
$[0, 3]$	$(-\infty, -2) \text{ or } (1, \infty)$	Free Space	$(2, \infty)$	$(-\infty, 2]$
$(0, 4]$	$(-\infty, -3] \text{ or } [2, \infty)$	$(-\infty, -4) \text{ or } [-1, \infty)$	$(4, \infty)$	$(3, 5)$
$[5, \infty)$	$[2, 5)$	$(-\infty, 3] \text{ or } [5, \infty)$	$(-\infty, 3)$	$(-1, 4]$

MATHO

$(-\infty, 0] \text{ or } (4, \infty)$	$(3, 5)$	$(-1, 3)$	$[2, 5)$	$[-4, 5)$
$(-\infty, -4) \text{ or } [-1, \infty)$	$(-\infty, 3] \text{ or } [5, \infty)$	$(-\infty, 2) \text{ or } [3, \infty)$	$(0, 4]$	$(-1, 4]$
$(2, \infty)$	$[-1, \infty)$	Free Space	$[5, \infty)$	$(-\infty, -2) \text{ or } (0, \infty)$
$(-\infty, -3] \text{ or } [2, \infty)$	$(4, \infty)$	$[0, 3]$	$(-\infty, -3)$	$(-\infty, 0] \text{ or } (4, \infty)$
$(-\infty, 3)$	$(-\infty, -2]$	$[-4, -1]$	$(-\infty, -2) \text{ or } (1, \infty)$	$(-\infty, 2]$

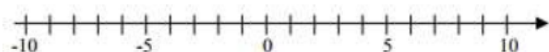
Computer Station ~ Delta Math

Complete the "Interval Notation" assignment. Use the space below to show your work.

Mrs. Kennedy's Station ~ Interval Notation

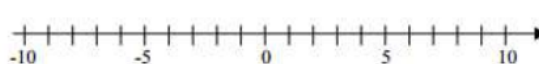
For each of the following, graph the portion of the number line described by the inequality and then write the inequality using **interval notation**.

(a) $x > 4$



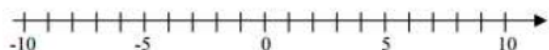
Equivalent Interval Notation: _____

(b) $-2 \leq x < 7$



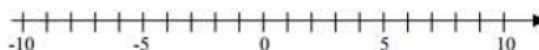
Equivalent Interval Notation: _____

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



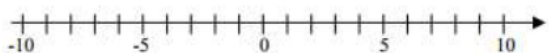
Equivalent Interval Notation: _____

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



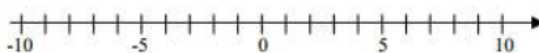
Equivalent Interval Notation: _____

(e) $x \geq 3$ or $x < 2$



Equivalent Interval Notation: _____

(f) $x \geq 4$ and $x < -4$



Equivalent Interval Notation: _____

Continue onto the next page.

Circle the correct answer and then write the compound inequalities using interval notation.

Which inequality is represented by the graph?

- A. $-1 < x < 2$ B. $-1 \leq x < 2$ C. $-1 < x \leq 2$ D. $-1 \leq x \leq 2$



Interval Notation: _____

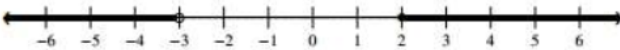
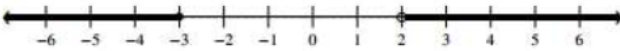
Which inequality is represented by the accompanying graph?

- A. $-2 < x \leq 3$ B. $-2 \leq x \leq 3$
C. $-2 \leq x < 3$ D. $-2 < x < 3$



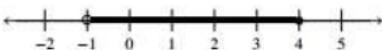
Interval Notation: _____

Which graph represents the inequality $-3 < x \leq 2$?

- A. 
B. 
C. 
D. 

Interval Notation: _____

Which graph represents the inequality $-1 \leq x < 4$?

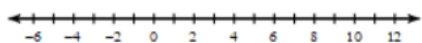
- A.  B. 
C.  D. 

Interval Notation: _____

Continue onto next page.

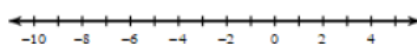
Solve and graph the following compound inequalities. Then write it in interval notation.

$$-9 \leq a - 5 < 4$$



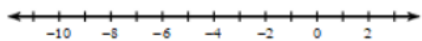
Interval Notation: _____

$$-1 + v < -7 \text{ or } 8v \geq 16$$



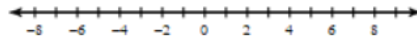
Interval Notation: _____

$$x + 5 \geq 5 \text{ or } 2 + x < -4$$



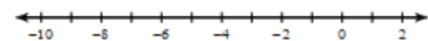
Interval Notation: _____

$$4m - 3 > 17 \text{ or } -m + 2 \geq 7$$



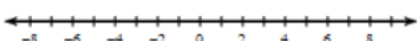
Interval Notation: _____

$$40 \leq -8v \leq 64$$



Interval Notation: _____

$$-34 \leq 8 - 7p < 43$$

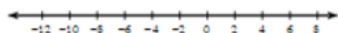


Interval Notation: _____

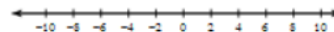
Independent Station ~ Solving and Graphing Compound Inequalities

Solve each compound inequality and graph the solution.

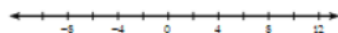
$$p - 1 > 4 \text{ or } -8p \geq 80$$



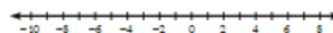
$$-63 < -7p \leq 70$$



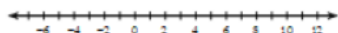
$$4 + x < -4 \text{ or } 4 + x \geq 13$$



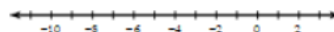
$$-14 < r - 6 < 0$$



$$5n \leq -10 \text{ or } n - 4 \geq 4$$

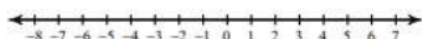


$$-5 < x + 5 \leq 6$$



Continue onto next page.

$$-10b + 3 \leq -37 \text{ or } 3b - 10 \leq -25$$



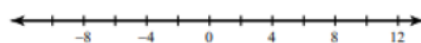
$$-3 \leq \frac{p}{2} < 0$$



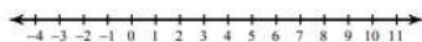
$$-50 < 7k + 6 < -8$$



$$m - 2 < -8 \text{ or } \frac{m}{8} > 1$$



$$r + 5 \geq 12 \text{ or } \frac{r}{9} < 0$$



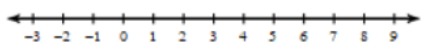
$$8x + 8 \geq -64 \text{ and } -7 - 8x \geq -79$$



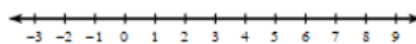
Homework ~ Monday 12/16

Solve and graph the following compound inequalities.

$$-10 \leq 10b \leq 70$$

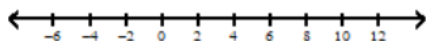


$$-8v \leq -32 \text{ or } -7v > -21$$



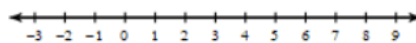
Graph the following compound inequalities and write using interval notation.

$$0 \leq x \leq 5$$



Interval Notation: _____

$$x < 3 \text{ or } x \geq 7$$

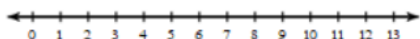


Interval Notation: _____

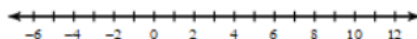
Homework ~ Tuesday 12/17

Solve and graph the following compound inequalities.

$$m + 2 < 7 \text{ or } m - 8 \geq 1$$



$$-100 < -10n \leq 50$$



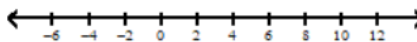
Graph the following compound inequalities and write using interval notation.

$$-2 \leq x \leq 10$$



Interval Notation: _____

$$x \leq -4 \text{ or } x > 0$$

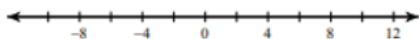


Interval Notation: _____

Homework ~ Wednesday 12/18

Solve and graph the following compound inequalities.

$$2x < 10 \text{ or } \frac{x}{2} \geq 3$$



$$-1 < 9 + n < 17$$



Graph the following compound inequalities and write using interval notation.

$$x < 5 \text{ or } x \geq 6$$



Interval Notation: _____

$$1 \leq x \leq 7$$



Interval Notation: _____