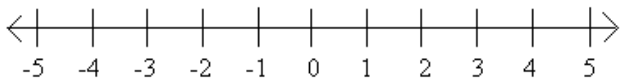


## Math 1010 - Inequality &amp; Absolute Value Lab

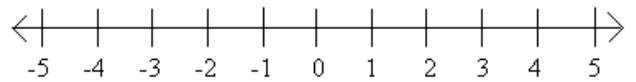
You should be familiar with both inequality and interval notation. Study the table below noting the notation and when brackets are rounded or squared:

<i>Inequality Notation</i>	<i>Interval Notation</i>	<i>Graph</i>
$x > -3$	$(-3, \infty)$	
$x \geq -3$	$[-3, \infty)$	
$x < 3$	$(-\infty, 3)$	
$x \leq 3$	$(-\infty, 3]$	
$-4 < x < 4$	$(-4, 4)$	
$-4 \leq x \leq 4$	$[-4, 4]$	
$x < -1$ or $x > 3$	$(-\infty, -1) \cup (3, \infty)$	
$x \leq -2$ or $x \geq 1$	$(-\infty, -2] \cup [1, \infty)$	

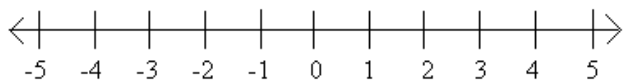
Now graph the following:



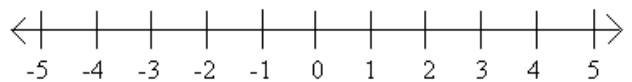
$$x \geq 1$$



$$x < 4$$



$$-4 \leq x < 3$$



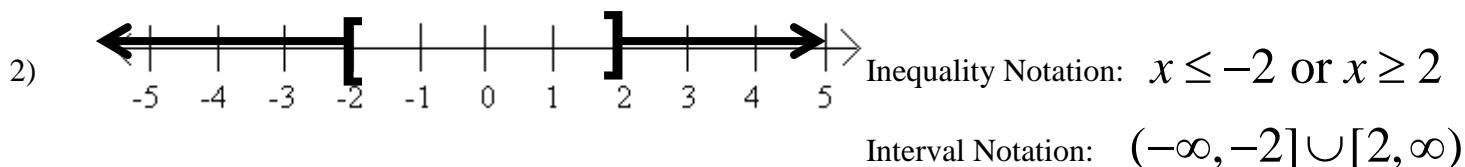
$$(-\infty, 0) \cup (2, \infty)$$

Find a lab partner and compare your graphs. If they don't match discuss the discrepancies and correct any errors.

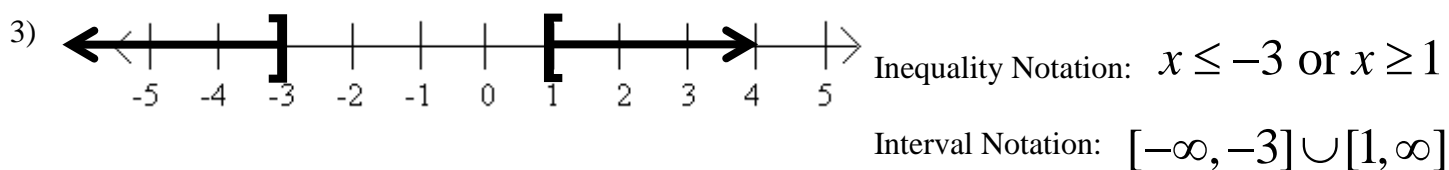
For each problem, there is an error. Explain the mistake and write the correct answer.



Explanation of Error:



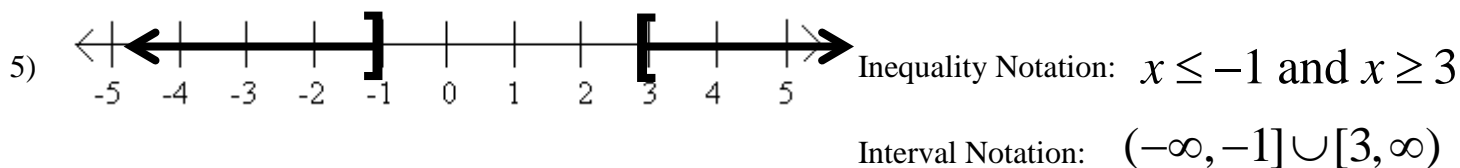
Explanation of Error:



Explanation of Error:



Explanation of Error:



Explanation of Error:

Go to our course and click on the link that says Labs & Projects and click on PowerPoint 1 – Absolute Value.

Press F5 to launch the PowerPoint. Click the mouse or press the down arrow on the keyboard to advance the PowerPoint after reading what is on the screen.

After watching the PowerPoint solve the following:

1.  $|x| = 3$

2.  $|x - 2| = 5$

3.  $|2x - 3| = 7$

You should have gotten 2 answers for  $x$  in each of the problems above, one from the positive case and one from the negative case. Check your answers with your lab partner and resolve any discrepancies.

Now go back to the Labs & Projects menu and click on PowerPoint 2 – Absolute Value Inequalities and watch it.

After watching the PowerPoint, write the letter of the graph below that shows what the solution to the absolute value inequality would look like. DO NOT SOLVE these---just pick the graph that illustrates what the solution would look like.

Problem	Letter of Graph
$ x - 4  < 2$	
$ 2x - 1  \geq 4$	
$ 3x + 7  > 1$	

Problem	Letter of Graph
$ x + 10  < 8$	
$ 4x  \leq 5$	
$ 2x + 7  < -3$	

A.  $(\text{-----})$





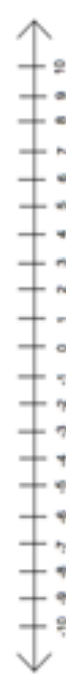


C.  $\leftarrow\text{-----}\rightarrow$

B.  $[\text{-----}]$

D.  $\leftarrow\text{-----}]$

**NOTE:** The last one is a tricky one!!! It is not any of the graphs shown. In fact it has no solution. Do you see why? If you don't see why talk about it with your lab partner and if you two don't know why, ask another group or your instructor to explain why it has no solution.

Now work with your lab partner and fill out the table on the last page with the inequality and interval notation and graph each of the absolute value inequalities given.

Problem	Inequality Notation	Interval Notation	Graph
$ x  < 4$			
$ x  \leq 7$			
$ x  > 2$			
$ x  \geq 5$			
$ x + 2  < 1$			
$ x - 3  \geq 5$			
$ x - 8  \leq 1$			
$ 2x + 1  > 3$			