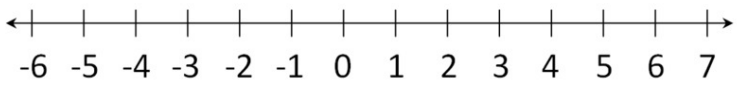
Mathematics 1375/OL79, Fall 2020 **Quiz #1**
Instructor: Suman Ganguli **Due: Friday, Sept 18** **Name:** _____

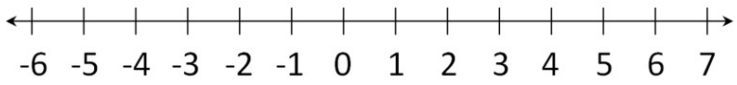
Submit your written solutions by the end of the day Friday on Blackboard (look for the "Quiz #1" Assignment). Please scan your written answers to a single pdf file.

1. (4 points) For each of the following inequalities:
   - express the set in interval notation
   - graph the set on the number line

   (a) $-4 \leq x < 1$



   (b) $x \geq 0$ but $x \neq 3$



2. (6 points) Solve each inequality algebraically (show all your work!), and write the solution set in interval notation:

   (a)

   $$|2x - 5| < 7$$

   (b)

   $$|15 - 3x| \geq 6$$

3. (Extra credit) Explain why the inequality $|7x+2| < -1$ has no solutions (i.e., the solution set is the "empty set": $\{\} = \emptyset$). Your explanation should consist of 1-2 complete sentences. (Hint: Explain in terms of the range, i.e., the set of outputs, of the absolute value function.)