

# HW 2

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I've completely randomized the following problems so you won't be able to cheat. Recall how to graph on the real number line. If  $x$  is taken to be your variable, you will shade in the regions for which the statement is true. For example, if you're trying to plot  $x < 10$ , you will shade in everything to the left of  $x = 10$  (because everything to the left of  $x = 10$  is where  $x < 10$ ) and leave unshaded everything to the right of  $x = 10$  because that's where  $x > 10$ .

Since the problems are randomized, you may have a contradiction such as  $x < 10$  and  $x > 11$ . If that's the case, don't plot anything and write  $\phi$  down.

Also there's a challenge problem at the end. This one is worth 2 homework passes.

**Problem 0.** On the real number line, plot  $x \leq -6$  or  $x \geq 8$  and describe the geometric object.

**Problem 1.** On the real number line, plot  $x \leq -5$  or  $x \geq 5$  and describe the geometric object.

**Problem 2.** On the real number line, plot  $|x| \geq -1$  and describe the geometric object.

**Problem 3.** On the real number line, plot  $|x| \leq 1$  and describe the geometric object.

**Problem 4.** On the real number line, plot  $x \leq -6$  and describe the geometric object.

**Problem 5.** On the real number line, plot  $x \leq 7$  or  $x \geq -7$  and describe the geometric object.

**Problem 6.** On the real number line, plot  $|x| \leq -10$  and describe the geometric object.

**Problem 7.** On the real number line, plot  $|x| \geq 0$  and describe the geometric object.

**Problem 8.** On the real number line, plot  $x \leq -10$  and  $x \geq 4$  and describe the geometric object.

**Problem 9.** On the real number line, plot  $x \leq 1$  or  $x \geq 3$  and describe the geometric object.

**Problem 10.** On the real number line, plot  $x \geq 6$  and describe the geometric object.

**Problem 11.** On the real number line, plot  $x \leq -5$  and  $x \geq -10$  and describe the geometric object.

**Problem Challenge.** Recall that a *postulate* is a statement that we *define* as being true. It cannot be logically deduced from other postulates like a *theorem* can. The Segment Addition Postulate and Ruler Postulate seem redundant. Are they redundant? Why or why not?