

Topic 4.7 Practice Problems

1. Determine whether the statement is true or false.

(a) $10.5 \geq 10.5$

(b) $11 > 9$

(c) $6 < 4$

(d) $6 \leq 6$

(e) $7 \neq 7$

(f) $7 > 7$

(g) $8 < 9$

(h) $1.1 > \frac{11}{10}$

(i) $\frac{21}{2} < 10.5$

(j) $3.50000 \neq 3.5$

(k) $\frac{1}{2} > \frac{1}{3}$

(l) $\frac{1}{4} < \frac{1}{8}$

(m) $\frac{1}{20} \leq 0.05$

(n) $0.15 > \frac{1}{5}$

2. Graph each of the following inequalities on the number line.

(a) $y > 5$

(b) $c \leq \frac{6}{3}$

(c) $t < 1.9$

(d) $x \geq 7$

(e) $p \neq 5$

Hint for (e): remember what an open circle means, and that you can break $p \neq 5$ into two inequalities. For example, $q \neq 7$ can be broken into $q > 7$ and $q < 7$.

3. Write four inequalities, using $>$, \geq , $<$, and \leq , whose solutions consist of
4, 5, 6, and 7.

Use the variable s .

- When using $>$ and \geq , ensure that 3 is **not** part of the solution set.
 - When using $<$ and \leq , ensure that 8 is **not** part of the solution set.
4. A ride has a rule: you must be at least 150 pounds, but you have to be under 300 pounds.
- (a) Make two number lines and graph the inequalities.
 - (b) Then make one number line representing the full scenario (overlap both graphs and show where they meet).
 - (c) Give 3 possible weights that are allowed on this ride.
5. For every inequality, there is a negation (an opposite inequality).

Assume that we have $x \geq 7$.

- (a) First, graph the inequality. Then notice which part of the graph is **not** a solution. Can you make an inequality describing that region?
- (b) After finding the opposite inequality, what is the negation of \geq ?
- (c) What is the negation for $>$, $<$, and \leq ?