

### Introduction to Inequalities Homework

**Directions:** Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable.

1. Write an expression in words to represent each inequality. Then represent the inequality on a number line, and state at least two possible values for the variable.

a.  $3 < z$

b.  $w \geq -4$

c.  $f < 5$

d.  $b \leq 0$

e.  $-1 > h$

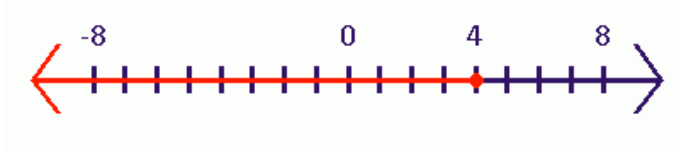
f.  $v \leq 9$

g. The cost of a new car at a certain dealership is at least \$1,000.

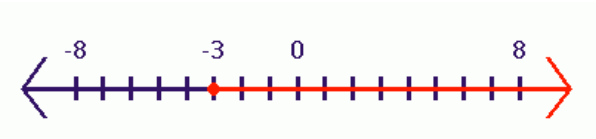
h. The temperature has not yet reached 20 degrees Fahrenheit.

2. When solving inequalities, what must you remember to do if you multiply or divide by a negative number at any point in the solving process?

3. Write an inequality for each number line.



A.



B.

4. How many unique solutions are there to all workable inequalities? Support your answer.



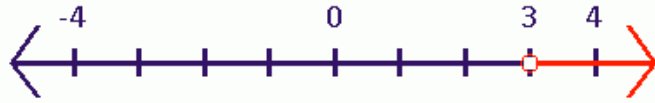
**Throwback!:**



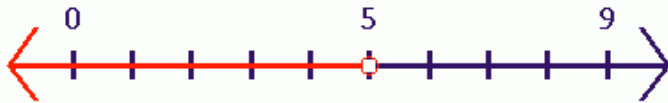
**Looking Ahead:** Assume you earn \$11 per hour babysitting. You want to make at least \$100 this week. How many hours will you have to babysit for? If you did not solve this problem using an inequality, could you write an inequality to model the situation?!

## Selected Solutions

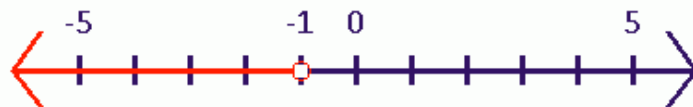
1. a. three is less than  $z$  OR  $z$  is greater than three;  $z$  could be 5, 12, 300, etc.



c.  $f$  is less than five;  $f$  could be 0, -3, -1000, etc



e. -1 is greater than  $h$  OR  $h$  is less than -1;  $h$  could be -3, -10, -40000, etc.



g. cost is greater than or equal to 1000; the cost could be \$4,000, \$50,000, \$210,000, etc.



3. A.  $x \leq 4$

4. We will discuss in class; but if you feel stuck, consider this **HINT**: Think about the inequality  $x > 1$  for example. How many different values could  $x$  possibly be? Can you list them all? If so, do so. If not, explain why not.