

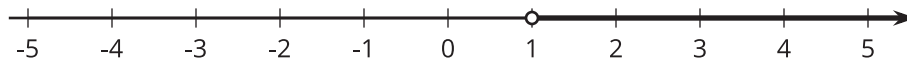


# Reintroducing Inequalities

Let's work with inequalities.

## 13.1 Greater Than One

The number line shows values of  $x$  that make the inequality  $x > 1$  true.



Select **all** the values of  $x$  from this list that make the inequality  $x > 1$  true.

- A. 3
- B. -3
- C. 700
- D. 1.05
- E. 1

## 13.2 The Roller Coaster

A sign next to a roller coaster says, "You must be at least 60 inches tall to ride." Noah is happy to know that he is tall enough to ride.

1. Noah is  $x$  inches tall. Which of the following can be true? Explain how you know.

- A.  $x > 60$
- B.  $x = 60$
- C.  $x < 60$

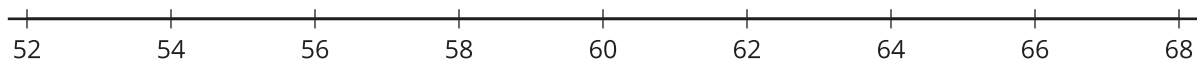


2. Noah's friend is 2 inches shorter than Noah. Can you tell if Noah's friend is tall enough to go on the ride? Explain or show your reasoning.

3. List a possible height for Noah that would mean:
  - a. That his friend is tall enough to go on the ride.

- b. That his friend is not tall enough for the ride.

4. On the number line, show all the possible heights that Noah's friend could be.



5. Noah's friend is  $y$  inches tall. Use  $y$  and any of the symbols  $<$ ,  $=$ ,  $>$  to express this height.

## 13.3

## Is the Inequality True or False?

The table shows four inequalities and four values for  $x$ . Take turns with your partner to decide whether each value makes each inequality true, and complete the table with “true” or “false”.

- For each decision you make, explain to your partner how you know it’s true or false.
- For each decision that your partner makes, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

$x$	0	100	-100	25
$x \leq 25$				
$100 < 4x$				
$-3x > -75$				
$10 \geq 35 - x$				

**Are you ready for more?**

Find an example of an inequality used in the real world and describe it using a number line.

## Lesson 13 Summary

Inequalities can be used to describe a range of numbers. For example, in many places, people are eligible to get a driver's license when they are at least 16 years old. If  $h$  is the age of a person, then we can check if they are eligible to get a driver's license by checking if their age makes the inequality  $h > 16$  (they are older than 16) or the equation  $h = 16$  (they are 16) true. The symbol  $\geq$ , pronounced "greater than or equal to," combines these two cases and we can just check if  $h \geq 16$  (their age is greater than or equal to 16).

The inequality  $h \geq 16$  can be represented on a number line. The closed, or filled in, circle at 16 shows that 16 is a solution. The shading and arrow pointing right from 16 shows that all numbers greater than 16 are also solutions.

