## Unit 3 Lesson 10: A New Kind of Number

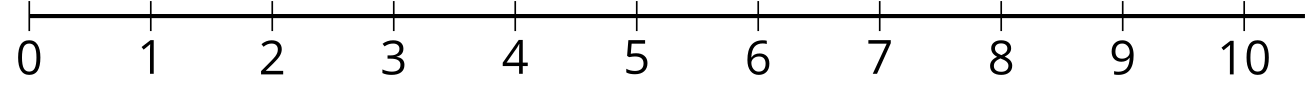
### 1 Numbers Are Inventions (Warm up)

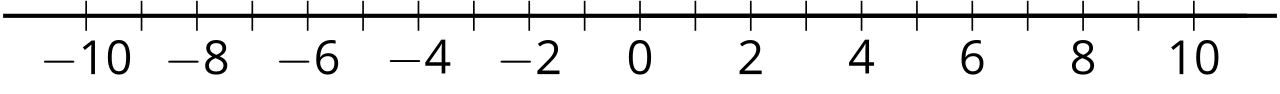
#### Student Task Statement

Jada was helping her cousin with his math homework. He was supposed to solve the equation . He said, “If I subtract 8 from both sides, I get . This doesn’t make sense. You can’t subtract a bigger number from a smaller number. If I have 5 grapes, I can’t eat 8 of them!”

What do you think Jada could say to her cousin to help him understand why actually does make sense?

#### Activity Synthesis

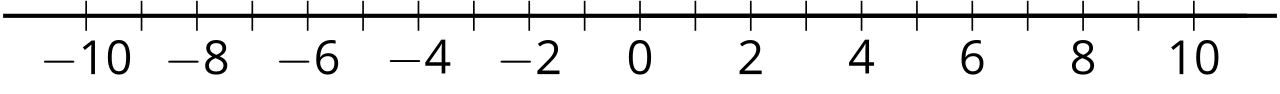




### 2 The Square Root of Negative One

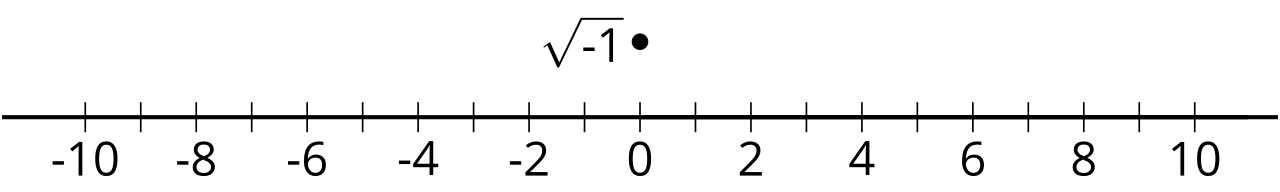
#### Student Task Statement

Numbers on the number line are often called **real numbers**.



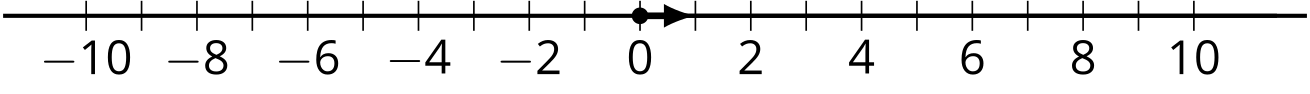
1. The equation has 2 real solutions. How can you see this on the graph of ? Draw points on this real number line to represent these 2 solutions.
2. How many real solutions does have? Explain how you can see this on the graph of . Draw the solution(s) on a real number line.
3. How many real solutions does have? Explain how you can see this on the graph of . Draw the solution(s) on a real number line.

#### Activity Synthesis



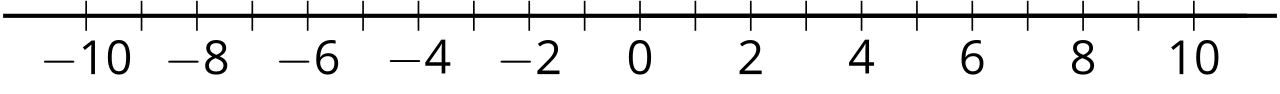
### 3 Imaginary Numbers

#### Images for Launch

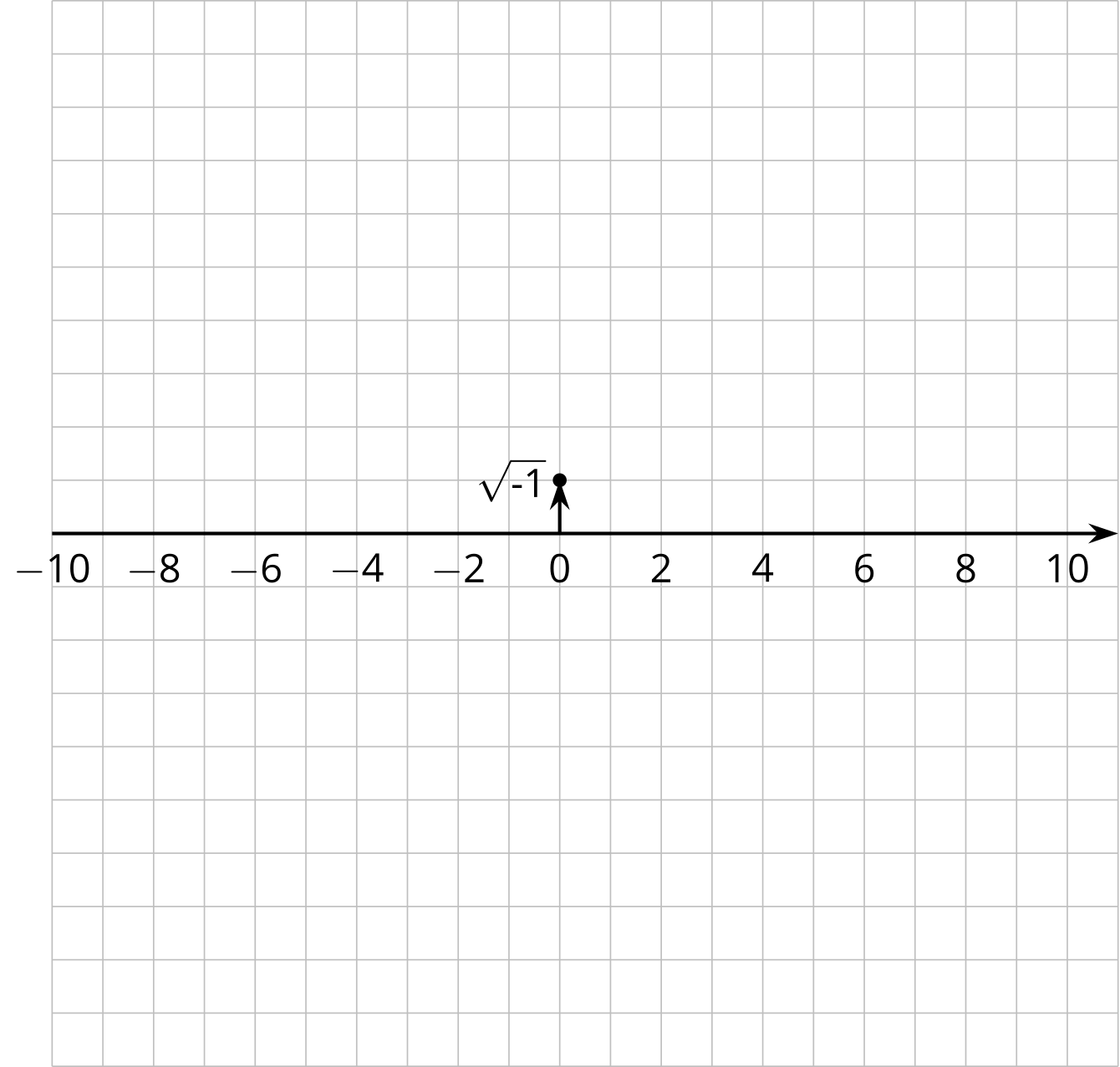


#### Student Task Statement

1. On the real number line:
   1. Draw an arrow starting at 0 that represents 3.
   2. Draw an arrow starting at 0 that represents -5.

* 

1. This diagram shows an arrow that represents .

* 
  1. Draw an arrow starting at 0 that represents .
  2. Draw an arrow starting at 0 that represents .
  3. Draw an arrow starting at 0 that represents .



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