

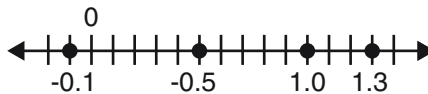
Extra Example 2
for use before Example 2

Graphing Numbers

Graph the numbers 1.3, 0.55, -0.1 , and 1 on a number line.

Solution

The number line needs to include the least and greatest values, -0.1 and 1.3, and everything in between. Use increments of one-tenth when drawing the number line, so that all the values can be shown. Graph each number by drawing a point where the number belongs on the graph.



The negative numbers are to the left of zero on the number line and the positive numbers are to the right of zero. Remember that the numbers increase from left to right.

Extra Example 3
for use before Example 4

Approximating a Square Root

Explain how to approximate $\sqrt{70}$ to the nearest tenth.

Solution

The number 70 is between the perfect squares 64 and 81, so $\sqrt{70}$ is between $\sqrt{64} = 8$ and $\sqrt{81} = 9$.

To find $\sqrt{70}$ to the nearest tenth, make a table of values.

$$8^2 = 64$$

$$8.1^2 = 65.61$$

$$8.2^2 = 67.24$$

$$8.3^2 = 68.89$$

$$8.4^2 = 70.56 \leftarrow 68.89 < 70 < 70.56,$$

$$\text{so } 8.3 < \sqrt{70} < 8.4.$$

To decide whether $\sqrt{70}$ is closer to 8.3 or 8.4, find 8.35^2 .

$$8.35^2 = 69.7225$$

$$69.7225 < 70 < 70.56, \text{ so } 8.35 < \sqrt{70} < 8.4.$$

So $\sqrt{70}$ is closer to 8.4 than 8.3.

ANSWER To the nearest tenth, $\sqrt{70} = 8.4$.