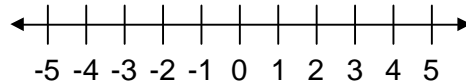


Section 2.1 The Real Number Line

Graphing on the Real Number Line

Real numbers can be graphed as points on a horizontal number line. The point labeled 0 is the origin. Points to the left of zero are negative numbers and points to the right of zero are positive.

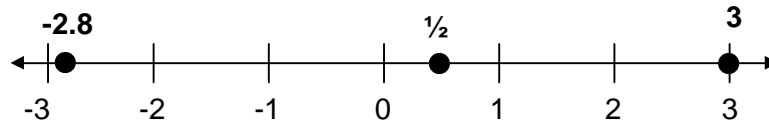


The marks indicate integers. Fractions and decimals can be graphed between the integers.

Graphing Real Numbers

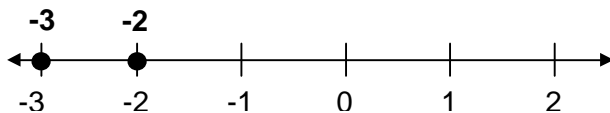
Note how you put a dot on the point to represent the number and place the value you plot above the point.

Example: Graph $\frac{1}{2}$, -2.8 , and 3 on a number line.



Comparing Real Numbers

Example: Graph -2 and -3 on a number line and write two inequalities to compare them.



-3 is to the left of -2 so: $-3 < -2$
 -2 is to the right of -3 so: $-2 > -3$

Absolute Values

The absolute value of a number is its distance from zero on the number line. -3 is 3 units away from the number line so the absolute value of -3 is 3. We use $|-3|$ to indicate that we are finding the absolute value of -3 .

Sometimes it is helpful to think of the absolute value bars ($| |$) as being a positive making machine.

Examples: $|-4| = 4$ $|4| = 4$ $|0| = 0$ $|-7| = 7$ $-|-3| = -3$