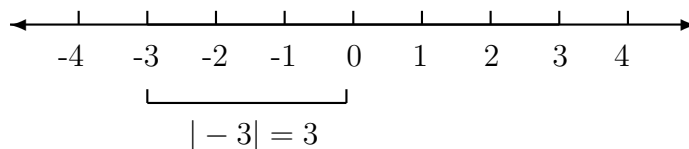


Absolute Values

The absolute value of an integer is its distance from 0 on the number line. Two vertical bars are used to indicate absolute value.

“The absolute value of -3 ” is written $|-3|$.



The absolute value of a number is always positive or zero, because the absolute value is a distance. For example, $|-3| = 3$ and $|2| = 2$.

Additive Inverses (Opposites)

Switching the sign (from positive to negative, or negative to positive) of a number gives its opposite. For example, the opposite of -10 is 10 , while the opposite of 37 is -37 . The opposite of 0 is 0 .

Another name for the opposite of a number is *additive inverse*. Recall the important property given in the text:

Property of the Additive Inverse:

$$a + (-a) = 0$$

The sum of a number and its additive inverse is zero.

Finding the additive inverse of a polynomial works in the same way: positives become negatives, and negatives become positives. For example, the additive inverse of $-x$ is x , and the additive inverse of

$$-3x - 4y + z - 24$$

is

$$3x + 4y - z + 24.$$

Quiz

1. Order the following from least to greatest.

$-3, 0, -2, 3, 6, -6, 5, -1, -5$

List the absolute values of these numbers. Which have the largest absolute value?

2. True or False.

(a) $-3 < -4$

(b) $0 > 0$

(c) $-1000 > 1$

(d) $1 \leq 1$

3. Find the additive inverse of $3x + 20 - y$.