

3 Integers

Key Words

integer
opposite

An **integer** is a number in the set of whole numbers and their opposites. The **opposite** of a number is the same number with the opposite sign: + or -. Opposite numbers are the same distance from 0 on a number line.

Positive integers are to the right of 0 on a number line. Negative integers are to the left of 0. All positive integers have negative opposites; all negative integers have positive opposites.

Fractions and decimals are not integers.

Example 1

Points A and B are plotted on the number line. What is the value of point A ?



Each mark on the number line represents one integer.

Point A is 2 units to the left of -5 , so it is 2 less than -5 , or -7 .

The value of point A is -7 .

Example 2

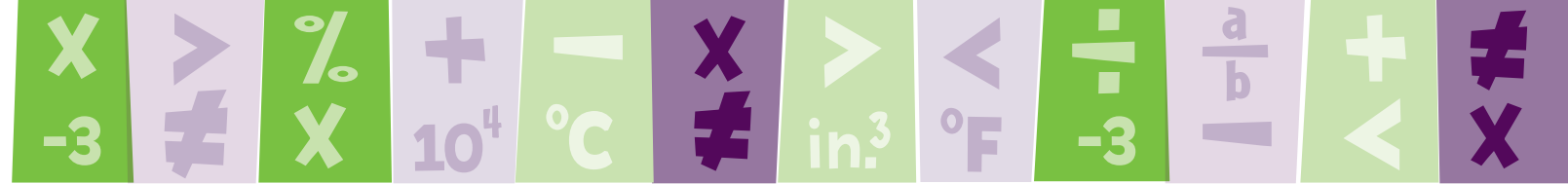
Use the number line in Example 1. What is the opposite of point B ?

Point B on the number line has a value of 5. Its opposite is the same number with the opposite sign. Since 5 is positive, its opposite is negative 5.

The opposite of point B is -5 .

DISCUSS

What is the only number that is its own opposite? Why?



Guided Practice

- 1 Carlene has a balance of \$795 in her savings account. She has a balance of $-\$70$ in her checking account. What does 0 represent in this situation?

Step 1 Interpret the positive integer in the situation.

Carlene's savings account has a balance of \$795. What does this mean?

Step 2 Interpret the negative integer in the situation.

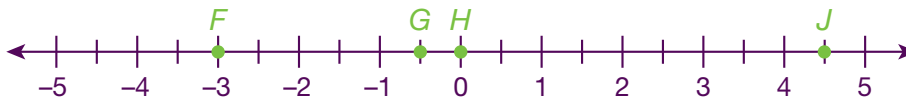
Carlene's checking account has a balance of $-\$70$. What does this mean?

THINK

It is possible to have negative money if you owe money.

In this situation, 0 represents _____.

- 2 Which points on the number line below represent integers?



Step 1 Identify the values of the points.

Point *F* has a value of _____.

Point *G* has a value of _____.

Point *H* has a value of _____.

Point *J* has a value of _____.

REMEMBER

An integer cannot be a fraction unless it reduces to a whole number.

Step 2 Identify the whole numbers and their opposites.

Points _____ and _____ are whole numbers or their opposites.

The points on the number line that represent integers are _____.