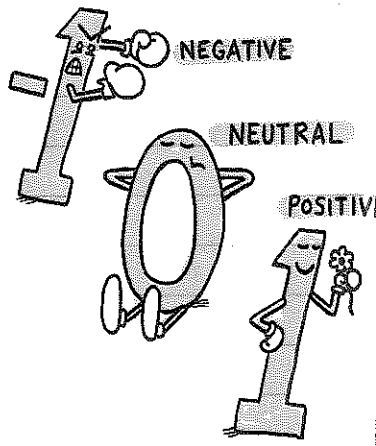
CHECK YOUR ANSWERS

1. Integer, rational, real
2. Rational, real
3. Irrational, real
4. Rational, real
5. Natural, whole, integer, rational, real
6. Integer, rational, real (because $-\frac{9}{3}$ can be rewritten as -3)
7. Irrational, real
8. Rational, real
9. To the right
10. To the left

Chapter 2

POSITIVE and NEGATIVE NUMBERS

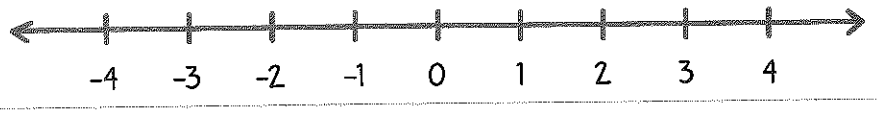
POSITIVE NUMBERS are used to describe quantities greater than zero, and **NEGATIVE NUMBERS** are used to describe quantities less than zero. Often, positive and negative numbers are used together to show quantities that have opposite directions or values.



All positive numbers just look like regular numbers (+4 and 4 mean the same thing). All negative numbers have a negative sign in front of them, like this: −4.

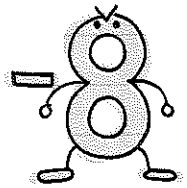
REMINDER:
All positive and negative whole numbers (without fractions or decimals) are integers.

As we know, all integers can be placed on a number line. If you put all integers on a number line, zero would be at the exact middle because zero is neither positive nor negative.

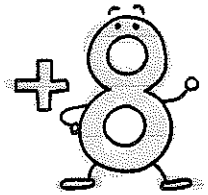


Positive and negative numbers have many uses in our world, such as:

NEGATIVE



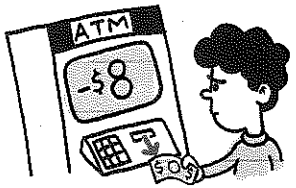
POSITIVE



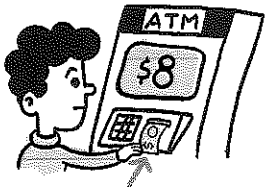
Debt
(money that you owe)

Savings
(money that you keep)

Debit from a bank account

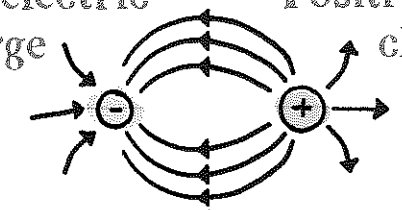


Credit to your bank account

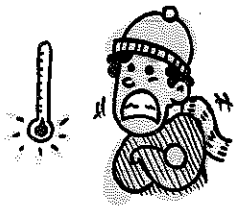


Negative electric charge

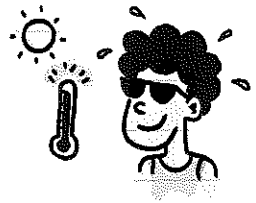
Positive electric charge



Below-zero temperatures



Above-zero temperatures



Below sea level

Above sea level

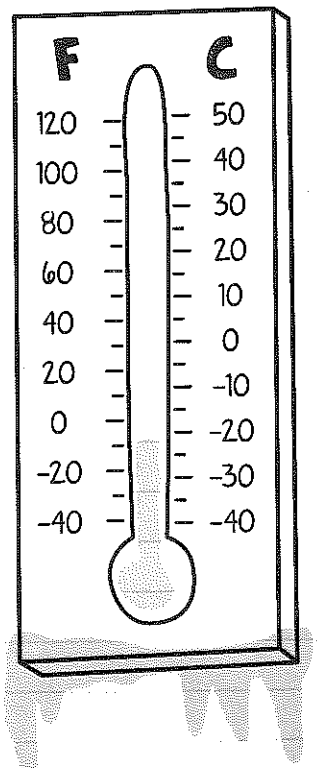
On a horizontal number line: Numbers to the left of zero are negative, and numbers to the right of zero are positive. Numbers get larger as they move to the right, and smaller as they move to the left. We draw **ARROWS** on each end of a number line to show that the numbers keep going (all the way to **INFINITY** and negative infinity!).

INFINITY
Something that is endless, unlimited, or without bounds

THE SYMBOL FOR INFINITY IS ∞.

Positive (+) and negative (−) signs are called **OPPOSITES**, so +5 and −5 are also called opposites. They are both the same number of spaces or the same distance from zero on the number line, but on "opposite" sides.

On a vertical number line (such as a thermometer), numbers above zero are positive, and numbers below zero are negative.



EXAMPLE: What is the opposite of 8?

−8

EXAMPLE: Devin borrows $2 from his friend Stanley. Show the amount that Devin owes as an integer.

−2

The **OPPOSITES OF OPPOSITES PROPERTY** says that the opposite of the opposite of a number is the number itself!

EXAMPLE: What is the opposite of the opposite of −16?

The opposite of −16 is 16. The opposite of 16 is −16.

So the opposite of the opposite of −16 is −16 (which is the same as itself).