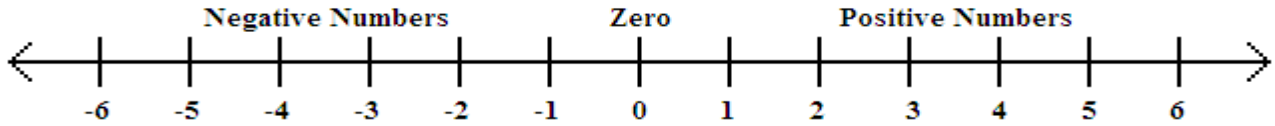


# Negative Numbers

**Negative numbers** are numbers less than 0.



In Algebra, sometimes the same symbol has different meanings. We have seen the symbol “– “ used in three different ways.

	Meaning	Example	We read...
Between two numbers	Subtraction	$9 - 4$	9 minus 4
In front of a number	Negative	$-6$	Negative 6
In front of a variable or a parenthesis	Opposite	$-x$ $-(-3)$	The opposite of $x$ The opposite of negative 3

## Objective 1: Adding integers

1. For positive numbers: Add as usual. The answer is positive.  
For example,  $2 + 3 = 5$
2. For negative numbers: Add absolute values and make the answer negative.  
For example,  $-2 + (-3) = -5$
3. When one number is zero, the sum is the other number.  
For example,  $4 + 0 = 4$
4. For a positive number and a negative number: Subtract the smaller absolute value from the greater absolute value. Then:
  - a) If the positive number has the greater absolute value, the answer is positive.
  - b) If the negative number has the greater absolute value, the answer is negative.
  - c) If the numbers have the same absolute value, the answer is 0.

**Example:** Add.

a)  $-4 + (-7)$

Answer:

b)  $4 + (-7)$

Answer:

c)  $-24 + 24$

Answer:

Now try the following exercises to check your understanding for Objective 1:

1.  $-15 + 9$

3.  $-6 + (-11)$

2.  $18 + (-18)$

4.  $7 + (-6)$

## Objective 2: Subtracting integers

**Opposite** – The opposite, or additive inverse, of a number  $a$  is written  $-a$ .

**The Opposite of an Opposite** – For any real number  $a$ ,

$$-(-a) = a.$$

For any real numbers  $a$  and  $b$

$$a - b = a + (-b)$$

- KFC Method
  - K – Keep the first number the same
  - F – Flip the sign
  - C – Change the sign of the second number

**Examples:** Subtract.

a)  $4 - 13$

Answer:

b)  $0 - (-7)$

Answer:

c)  $-8 - (-3)$

Answer:

Now try the following exercises to check your understanding for Objective 2:

1.  $-11 - 9$

3.  $-2 - (-5)$

2.  $0 - 18$

4.  $13 - (-1)$

### Objective 3: Multiplying/Dividing integers

To multiply or divide two nonzero numbers:

1. Using the absolute values, multiply or divide, as indicated.
2. If the signs are the same, the answer is positive.
3. If the signs are different, the answer is negative.

**Examples:** *Multiply/Divide.*

a)  $-3 \cdot 7$

Answer:

b)  $-3 \cdot (-6)$

Answer:

c)  $-24 \div 3$

Answer:

Now try the following exercises to check your understanding for Objective 3:

1.  $-9(-7)$

4.  $\frac{-18}{-2}$

2.  $24 \div (-3)$

5.  $-9 + 10 - 7$

3.  $-4 \times 5$

6.  $16 - (-6) + 10$