Integers

Definition: Integers are defined as positive and negative whole numbers, including zero.

Steps involved in addition and subtraction integers:

1) Look at the sign in front of the numbers:

2) If the sign in front of both numbers are the same, and the two numbers and keep the sign.

Examples:

a) \(4 + 6 = 10\) (Since both numbers are positive, add and keep the sign)

b) \(-4 - 6 = -10\) (Since both numbers are negative, add and keep the sign)

c) \(-25 + -5 = -30\) (Since both numbers are negative, add and keep the sign)

3) If the sign in front of both numbers are different, subtract the two numbers and keep the sign of the larger number.

Examples:

a) \(-5 + 3 = -2\) (Since 5 is the larger number, subtract 3 from 5 and keep its sign)

b) \(3 – 4 = -1\) (If there’s no sign in front of the number, it’s assumed to be positive, so, the difference between them is 1 and by keep the sign of the larger number (4), the answer is -1)

c) \(-10 + 5 = -5\) (Since the larger number is 10, subtract and keep its sign)

d) \(6 – 18 = -12\) (Since the larger is 18, subtract and keep its sign)

Note: If you have trouble conceptualizing, relate it to your checking account and pretend the numbers you are adding and subtracting are dollar values.

Steps involved in multiplying and dividing integers:

1) Look at the sign in front of the numbers first.

2) If the sign in front of both numbers are the same when multiplied or divided, then the answer will always be positive.
Examples:

a) \(-5 \times -3 = 15\)
b) \(5 \times 4 = 20\)
c) \(-6 \times -9 = 54\)
   \[-\frac{81}{9} = 9\]
d) \(-\frac{27}{3} = 9\)
e) \(-\frac{16}{4} = 4\)
f) \(-\frac{6}{2} = 2\)
g) \(-\frac{9}{3} = -3\)

* Special cases: 

\(-(-24) = 24\)

If you encounter this type of problem, then the negative sign in front is an understood negative one (-1).

3) If the sign in front of both numbers are different, then the answer will always be negative.

Examples:

a) \(-5 \times 3 = -15\)
b) \(-6 \times 4 = -24\)
   \[-\frac{4}{6} = -1\]
c) \(-\frac{24}{6} = -4\)
d) \(-\frac{10}{5} = -2\)
e) \(\frac{27}{-3} = -9\)