Integer Rules

Integers are the set of whole numbers along with their opposites. Integers = { ... -3, -2, -1, 0, 1, 2, 3 ...}

The absolute value of a number and the absolute value of its opposite are the same. |6| = |-6| = 6

Addition:

Same signs: Add the absolute values of the numbers. The sum has the same sign as the given numbers.

$\oplus + \oplus = \oplus$ Example: 6 + 7 = 13

$\ominus + \ominus = \ominus$ Example: -6 + -7 = -13

Different signs: Find the difference of the absolute values of the numbers and take the sign of the larger number (i.e., the one larger in absolute value).

$\oplus + \ominus =$ Example: 5 + -2 = 3 Example: 2 + -8 = -6

$\ominus + \oplus =$ Example: -4 + 9 = 5 Example: -7 + 5 = -2

Subtraction:

Change the subtraction sign to an addition sign, and then change the sign of the second number to the opposite sign.

$\oplus - \oplus = \oplus + \ominus$ Example: 3 – 2 = 3 + -2 = 1

$\ominus - \oplus = \ominus + \ominus$ Example: -9 – 11 = -9 + -11 = -20

$\oplus - \ominus = \oplus + \oplus$ Example: 4 – -5 = 4 + +5 = 4 + 5 = 9

$\ominus - \ominus = \ominus + \oplus$ Example: -6 – -10 = -6 + +10 = -6 + 10 = 4

Multiplication:

The product of two numbers having the same sign is positive.

$\oplus \cdot \oplus = \oplus$ Example: 2(2) = 4 $\ominus \cdot \ominus = \oplus$ Example: -3(-4) = 12

The product of two numbers having different signs is negative.

$\oplus \cdot \ominus = \ominus$ Example: 3(-6) = -18 $\ominus \cdot \oplus = \ominus$ Example: -1(7) = -7

Division:

The quotient of two numbers having the same sign is positive.

$\frac{\oplus}{\oplus} = \oplus$ Example: 6/3 = 2 $\frac{\ominus}{\ominus} = \oplus$ Example: -24/-12 = 2

The quotient of two numbers having different signs is negative.

$\frac{\oplus}{\ominus} = \ominus$ Example: 14/-7 = -2 $\frac{\ominus}{\oplus} = \ominus$ Example: -8/4 = -2