

# Integer Operation Rules

## Addition:

### Signs are the same:

Add the absolute values of the numbers and keep the same sign.

Examples:

$$\begin{array}{l} 2+2= 4 \quad 9+2= 11 \\ -5+-5= -10 \quad -8+-6= -14 \end{array}$$

### Signs are different:

Find the difference in the absolute values of the numbers and keep the sign of the addend with the larger absolute value.

Examples:

$$\begin{array}{l} 2 + (-3) = -1 \quad 8 + (-5) = 3 \\ -5 + 6 = 1 \quad -7 + 3 = -4 \end{array}$$

## Subtraction:

To subtract an integer, add its opposite.  
The sign of the first integer stays the same.  
Change the sign of the second integer and add.

Examples:

$$\begin{array}{l} 2 - (-1) = 2 + 1 = 3 \\ -5 - 2 = -5 + (-2) = -7 \\ -9 - (-2) = -9 + 2 = -7 \\ 8 - 6 = 8 + (-6) = 2 \end{array}$$

## Multiplication:

### Signs are the same:

When two integers with the same sign are multiplied the product is always positive.

Examples:

$$\begin{array}{l} 5 \times 3 = 15 \quad -4 \times (-5) = 20 \\ 6 \times 2 = 12 \quad -3 \times (-8) = 24 \end{array}$$

### Signs are different:

When two integers with different signs are multiplied the product is always negative.

Examples:

$$\begin{array}{l} -2 \times 8 = -16 \quad 8 \times (-2) = -16 \\ -4 \times 3 = -12 \quad 7 \times (-3) = -21 \end{array}$$

## Division:

### Signs are the same:

When two integers with the same sign are divided the quotient is positive.

Examples:

$$\begin{array}{l} 18 \div 3 = 6 \quad -15 \div (-5) = 3 \\ 24 \div 8 = 3 \quad -36 \div (-4) = 9 \end{array}$$

### Signs are different:

When two integers with different signs are divided the quotient is always negative.

Examples:

$$\begin{array}{l} 35 \div (-7) = -5 \quad -27 \div 3 = -9 \\ 16 \div (-8) = -2 \quad -30 \div 6 = -5 \end{array}$$