Addition and Subtraction

What is **addition**?

- Addition means move to the _____ on the number line.

What is **subtraction**?

- Subtraction means move to the _____ on the number line.

> **Recall:** Adding a negative number is the same as
> _____ the opposite of that number.

Example 1:

$$3 + (-4)$$

$$= _____$$

$$= _____$$

> **Recall:** Subtracting a negative number is the same as
> _____ the opposite of that number.

Example 2:

$$-4 - (-5)$$

$$= _____$$

$$= _____$$

> **Recall:** when adding and subtracting terms, they must be
> like terms.

$$-\frac{5}{6}+\frac{1}{3}$$

We must find the **lowest common denominator** (the LCD).

$$LCD = \underline{\hspace{2cm}}$$

Solution:

$$-\frac{5}{6}+\frac{1}{3}$$

$$=-\frac{5}{6}+\frac{1}{3}\left(\frac{2}{2}\right)$$

$$=-\frac{5}{6}+\frac{2}{6}$$

$$=\frac{-5+2}{6}$$

$$=-\frac{3}{6}$$

$$=\boxed{-\frac{1}{2}}$$

$$\frac{5}{8} - \left(-\frac{3}{4} - \frac{1}{2} \right)$$

$$LCD = \underline{\hspace{2cm}}$$

Solution:

$$\frac{5}{8} - \left(-\frac{3}{4} - \frac{1}{2} \right)$$

$$= \frac{5}{8} - \left(-\frac{3}{4}\left(\frac{2}{2}\right) \right.$$

$$\left. -\frac{1}{2}\left(\frac{4}{4}\right) \right)$$

$$= \frac{5}{8} - \left(-\frac{6}{8} - \frac{4}{8} \right)$$

$$= \frac{5}{8} - \left(-\frac{10}{8} \right)$$

$$= \frac{5}{8} + \frac{10}{8}$$

$$= \boxed{\frac{15}{8}}$$

<u>Recall:</u> The word **sum** indicates **addition**.

The word **difference** indicates **subtraction**.

Example 5:

Write the numerical expression for the phrase **the sum of 5, −3 and −7** and then simplify.

Solution:

$$5 + (-3) + (-7)$$

$$= 5 - 3 - 7$$

$$= 2 - 7$$

$$= \boxed{-5}$$

Example 6:

Write a numerical expression for the phrase **the difference of 7 and −10** and then simplify.

Solution:

$$7 - (-10)$$

$$= 7 + 10$$

$$= \boxed{17}$$

<u>NOTE</u>: Order is important!

1. Evaluate: $4 - (-7) + (-3)$

2. Evaluate: $-\dfrac{3}{2} - \left(-\dfrac{1}{3}\right) + \left(-\dfrac{5}{6}\right)$

3. Write a numerical expression for each phrase and simplify:

   a) **4** more than the sum of **−8** and **−3**.

   b) **12** less than the difference of **7** and **− 6**.