

## 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.

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

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

↳

LCD =         

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

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

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

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

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

LCD = 8

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

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

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

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

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

Recall: The word **sum** indicates  
addition.

The word **difference** indicates  
subtraction.

example 5: Write a numerical  
expression for the phrase **the  
sum of 5, -3, and -7** and  
then simplify.

$$\begin{aligned}5 + (-3) + (-7) \\&= 5 - 3 - 7 \\&= 2 - 7 \\&= \boxed{-5}\end{aligned}$$

example 6: write a numerical expression for the phrase the difference of 7 and -10 and then simplify.

$$\begin{aligned}7 - (-10) \\&= 7 + 10 \\&= \boxed{17}\end{aligned}$$

note: order is important!

## Addition and Subtraction Practice Problems

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

2. Evaluate  $-\frac{3}{2} - (-\frac{1}{3}) + (-\frac{5}{6})$

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  $-6$