

## Study Guide: Adding & Subtracting Fractions

### ◇Part 1: Adding & Subtracting Basic Fractions◇

Before we begin, let's remember what a Least Common Multiple (LCM) between two numbers is. Break-down the phrase: Least means smallest, Common means shared, and Multiples are the result of multiplication. That means that Least Common Multiple is the smallest multiple that two numbers share. Look at this example between six and four.

6	12	18	24
4	8	12	16

As you can see here, the smallest multiple that both numbers share is 12.

Why is this important? In order to add two fractions together, the denominators must be the same. We do this through multiplication. Let's look at this example below.

$$\frac{1}{4} + \frac{1}{6} \rightarrow \text{The LCM of the denominators is 12.}$$

We need to multiply 4 times 3, then 6 times 2 to reach 12. ⚠ BUT REMEMBER! What you do to the denominator, you must do to the numerator! Then, we add the numerators.

$$\frac{1 \times 3}{4 \times 3} + \frac{1 \times 2}{6 \times 2} = \frac{3}{12} + \frac{2}{12} = \frac{5}{12}$$

1.  $\frac{1}{3} + \frac{1}{4}$

4.  $\frac{9}{20} - \frac{3}{10}$

2.  $\frac{6}{8} - \frac{2}{4}$

5.  $\frac{5}{7} + \frac{3}{5}$

3.  $\frac{3}{4} + \frac{7}{10}$

6.  $\frac{9}{11} - \frac{4}{5}$

7.  $\frac{7}{10} - \frac{2}{5}$

9.  $\left(\frac{4}{9} + \frac{1}{2}\right) + \frac{3}{9}$

8.  $\frac{5}{12} + \frac{1}{8}$

10.  $\frac{5}{6} + \frac{1}{2} + \frac{1}{6}$

11. Bobby and Marco were gathering fraction tokens for a board game. Bobby found a  $\frac{7}{10}$  and a  $\frac{1}{2}$  tokens. Marco only found a  $\frac{3}{4}$  token. What is the difference between Bobby's tokens and Marco's token?
12. At an aquarium, a baby otter was born a month early. At birth, it weighed  $\frac{1}{4}$  of an ounce less than the average birth weight. If the average birth weight is  $\frac{9}{10}$  ounces, how much did the new baby otter weigh?
13. Zev is training for a quick sprint race. He is gradually increasing how far he runs today. First he runs  $\frac{1}{6}$  of a mile. Next, he runs  $\frac{1}{4}$  of a mile. Finally, he runs  $\frac{1}{2}$  of a mile. How far in total did he run?
14. In a science experiment, Sahil uses  $\frac{9}{12}$  liter of the blue solution and  $\frac{5}{8}$  liter of red solution to create a mixture. How much more blue solution was used than red solution?