ADDING AND SUBTRACTING FRACTIONS

What Is Adding and Subtracting Fractions with Unlike Denominators?

- Fractions can only be added or subtracted if the denominators are the same. For instance, $7/9 + 1/9 = 8/9$ or $11/13 - 6/13 = 5/13$

- In order to add or subtract two fractions with unlike denominators, one or more must be **changed to an equivalent fraction**.

  To solve $2/3 + 1/9$, first change $2/3$ to $n/9$ by multiplying times $3/3$ (which is 1). Then solve, $6/9 + 1/9$. The sum is $7/9$.

How to add and subtract fractions with unlike denominators:

- Before adding or subtracting, both fractions must have the same denomi~~nators~~

- Any num~~ber~~

- Begin b~~y~~ ~~finding the smallest number of which both denomin~~ators are a factor. ~~This is called the~~ least common denominator ~~(~~LCD).
  15 would be the LCD for 3 and 5 --- 21 would be the LCD for 3 and 7 --- 24 would be the LCD for 8 and 3

- Multiply each fraction by a fraction equal to one.

  For example, $5/5$ or $3/3$ is equal to one, so the denominators are the same.

The LCD for 2/3 and 1/4 is 12

   a. Multiply $2/3 \times 4/4 \rightarrow 8/12$

   b. Multiply $¼ \times 3/3 \rightarrow 3/12$

   c. Add $8/12 + 3/12 = 11/12$

- Just as you cannot add 6 oranges and 4 bananas and have 10 oranges/bananas, you cannot add 7/9 + 2/10 and have 9/19.

  Note: *Only fractions with like denominators can be added or subtracted.*

- Here are two examples:

  o 4/7 + 2/5 → 20/35 + 14/35 = 34/35

  Change both denominators to 35.

  o 7/8 − ½ → 7/8 − 4/8 = 3/8

  Change ½ to 4/8 because 2 is a factor of 8.

Try This!

2/3 − 4

_____

3/5 + 2

_____

11/12 − 4/9 =

_____

4/7 + 1/4 =

_____

7/8 − 2/7 =

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