

## Adding Fractions with Different Denominators

You have already seen how **easy** adding fractions with the **same or like** denominators can be. You simply add the numerators and keep the same denominator, then simplify if needed. Now we are going to talk about adding fractions with **different denominators**.

When you finish this lesson, you will **wonder why** you ever worried about adding these fractions in the first place.

First of all, when adding fractions with different denominators, the first step says that we must change these fractions so that they have the **“same denominator”**.

Here are the steps for adding fractions with different denominators. We will break-down each step **just like before** to make sure you’ve got it.

**So, here are the steps.**

1. Build each fraction so that both denominators are equal. **Remember**, when adding fractions with different denominators, the **denominators must be equal**. So we must complete this step first.
2. Re-write each **equivalent fraction** using this **new** denominator
3. Now you can add the numerators, and keep the denominator of the equivalent fractions.
4. Re-write your answer as a simplified or reduced fraction, if needed.

We know this sounds like a lot of work, and it is, but once you understand thoroughly **how to find the Common Denominator or the LCD**, and build equivalent fractions, everything else will start to fall into place. So, let’s **take our time** to do it Right!

But **keep in mind**, if you are doing homework, be sure to answer the problems in the **form asked for** in the assignment.

**Okay let’s get started...**

**Add  $1/2 + 1/3$**



+



**Notice that the overall size of our point of reference (The Whole) is EXACTLY the same.**

**Step #1** in our rule tells us that the denominators **must** be equal. And the easiest way to find a common denominator is to just **multiply** the denominators.

So let’s do that now...

$$2 \times 3 = 6$$

The Common Denominator for  $1/2$  and  $1/3$  is 6

**Step #2** – Re-write each equivalent fraction using this new denominator.

Since...



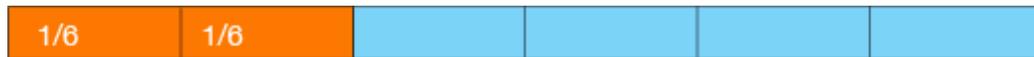
$1/2$  is equivalent to  $3/6$



And...



$1/3$  is equivalent to  $2/6$



We re-write our equation to read...

**Add:  $3/6 + 2/6$**

Now we are ready to do **Step #3** – **ADD** the numerators, and keep the denominator of the equivalent fractions (which is 6).

So, we end up with...

$$3/6 + 2/6 = (3 + 2)/6 = 5/6$$



+



=



Finally, **Step #4** – **Re-write** your answer as a simplified or reduced fraction, if needed.

In our example, the answer ( $5/6$ ) is already in its **simplest form**. So, no further action is required!

That's It!

A **quick and easy** way to add fractions with different denominators.