Adding and Subtractions Fractions Part II

Jess and Casey each ordered a whole pizza for themselves. Jess ate $\frac{3}{6}$ of her pizza, Casey ate $\frac{1}{5}$ of his pizza. How much pizza did they eat in total?

When the denominators of the fractions we are adding or subtracting are different we have to first make them the same before adding or subtracting!

We do this by writing them with a **COMMON DENOMINATOR**.

$$\frac{1\times 6}{5\times 6}=\frac{6}{30} \qquad \frac{3\times 5}{6\times 5}=\frac{15}{30}$$

Now that both the denominators are the same we can add the fractions together!

$$\frac{6}{30}+\frac{15}{30}=\frac{21}{30}$$

Remember that when we add fractions we only add the numerators together! The denominator stays the same.

Now that we have the final answer we have to simplify our fraction. Both the numerator and the denominator have a common factor of 3, so we can divide both numbers by 3.

$$\frac{21\div 3}{30\div 3}=\frac{7}{10}$$

Jess and Casey ate $\frac{7}{10}$ of a pizza together.

Steps for Adding or Subtracting fractions with unlike denominators:

1. Rewrite the fractions with a common denominator
2. Add or subtract the numerators together (keep the same denominator)
3. Simplify the fraction (if possible)

Example 1:

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

First, we have to start by rewriting the fractions with a common denominator. We can multiply 5 by 2 to get 10:

$$\frac{2\times 2}{5\times 2}=\frac{4}{10}$$

Now that we have an equivalent fraction we can subtract the numerators:

$$\frac{7}{10}-\frac{4}{10}=\frac{3}{10}$$

This equation cannot be reduced anymore, our answer is three tenths.

Example 2:

$$\frac{5}{12}+\frac{3}{8}$$

We can multiply each fraction by the other denominator to make a set of equivalent fractions.

$$\frac{5\times 8}{12\times 8}=\frac{40}{96} \qquad \frac{3\times 12}{8\times 12}=\frac{36}{96}$$

Now we can add the two fractions together by adding the numerators:

$$\frac{40}{96}+\frac{36}{96}=\frac{76}{96}$$

Simplify the fraction:

$$\frac{76\div 2}{96\div 2}=\frac{38}{48}$$

Notice that both the numerator and denominator are even numbers so we can divide each again by 2

$$\frac{38\div 2}{48\div 2}=\frac{19}{24}$$

Our final answer is $\frac{19}{24}$

When we divide the numerator and denominator by the lowest common factor, our work is shorter, but it is okay if we have to divide a second time (or more).

Example 3:

$$\frac{5}{12}+\frac{1}{4}$$

The lowest common denominator is 12, so multiply 1 and 4 by 3.

$$\frac{1\times 3}{4\times 3}=\frac{3}{12}$$

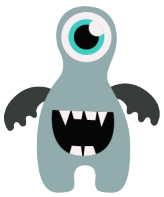
Now that both our denominators are the same we can add them together:

$$\frac{5}{12}+\frac{3}{12}=\frac{8}{12}$$

Lastly, we want to simplify the fraction:

$$\frac{8\div 4}{12\div 4}=\frac{2}{3}$$

Example 4:



Barry's wings are $\frac{5}{6}$ of a metre long, his brother's wings are $\frac{4}{7}$ of a metre long. How much longer are Barry's wings than his brother's?

First, we have to rewrite these fractions with a common denominator.

$$\frac{5\times 7}{6\times 7}=\frac{35}{42} \qquad \frac{4\times 6}{7\times 6}=\frac{24}{42}$$

You can always find a common denominator by multiplying the two denominators together!

Now we can subtract the fractions:

$$\frac{35}{42}-\frac{24}{42}=\frac{11}{42}$$

Since we can't reduce the fraction anymore this is our final answer.

Barry's wings are $\frac{11}{42}$ of a meter longer than his brother's.