Adding fractions

If the fractions have the <u>same</u> denominator...

$$\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$$

Add the numerators.
Keep the denominators the same.

If the fractions have <u>different</u> denominators...

$$\frac{1}{3} + \frac{2}{5} = \frac{11}{15}$$

Convert the fractions so that they have the same denominator.

First, find the **lowest common multiple** of both denominators.
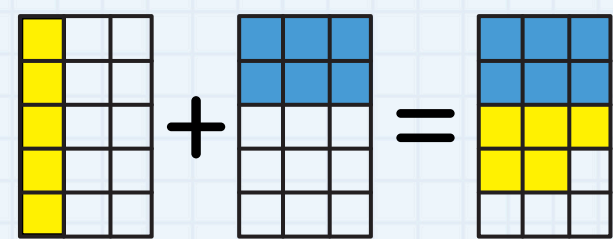
Multiples of 3: 3 6 9 12 15

Multiples of 5: 5 10 15

Convert the fractions so that the denominators **are both** the lowest common multiple.

$$\overset{\times 5}{\underset{\times 5}{\frac{1}{3}}} = \frac{5}{15} \qquad \overset{\times 3}{\underset{\times 3}{\frac{2}{5}}} = \frac{6}{15}$$

Add the numerators.
Keep the denominators the same.

$$\frac{5}{15} + \frac{6}{15} = \frac{11}{15}$$

Subtracting fractions

If the fractions have the <u>same</u> denominator...

$$\frac{5}{7} - \frac{2}{7} = \frac{3}{7}$$

Subtract the numerators.
Keep the denominators the same.

If the fractions have <u>different</u> denominators...

Convert the fractions so that they have the same denominator.

$$\frac{2}{3} - \frac{1}{4} = \frac{5}{12}$$

First, find the **lowest common multiple** of both denominators.

Multiples of 3: 3 6 9 12

Multiples of 4: 4 8 12

Convert the fractions so that the denominators are both the lowest common multiple.

$$\frac{2}{3} \overset{\times 4}{=} \frac{8}{12} \qquad \frac{1}{4} \overset{\times 3}{=} \frac{3}{12}$$

$\times 4$ $\times 3$

Subtract the numerators.
Keep the denominators the same.

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