

# With equal denominators

The sum of two fractions with equal denominators is a new fraction with the same denominator and the numerator with the sum of the numerators.

To subtract fractions we proceed in the same way: keep the same denominator and subtract the numerators.

For example, we want to sum  $\frac{1}{5}$  and  $\frac{3}{5}$ . We draw both fractions as partitions of rectangles. The fraction  $\frac{1}{5}$  is:

And the fraction  $\frac{3}{5}$  is:

We want to do the sum, ie, to have at the same time the painted rectangles about the first fraction and then about the second one.

The result is 4 painted rectangles:

Thus, the sum of  $\frac{1}{5}$  and  $\frac{3}{5}$  is  $\frac{4}{5}$ .

$$\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$$

To subtract fractions we proceed in the same way:

To subtract  $\frac{5}{7}$  to the fraction  $\frac{9}{7}$ , we start drawing the rectangles. The fraction  $\frac{9}{7}$  is:

And the fraction  $\frac{5}{7}$  is:

So if we subtract the five painted rectangles of the second fraction to the first one, the result is:

(We have painted the red ones with lilac and we have removed the blue ones)

So:

$$\frac{9}{7} - \frac{5}{7} = \frac{4}{7}$$