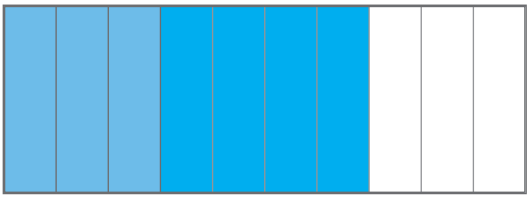
Adding and subtracting fractions

When adding and subtracting fractions, make sure the fractions have the same denominator (bottom number). Then just add or subtract the numerators (top numbers) and write the same denominator.



$\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$ ← *three-tenths and four-tenths is seven-tenths*

$\frac{11}{12} - \frac{7}{12} = \frac{4}{12}$ ← *eleven-twelfths take seven-twelfths is four-twelfths*

The answer you get might need to be simplified. If the answer is an improper (top heavy) fraction, it can be changed to a **mixed number**.

$\frac{11}{12} - \frac{7}{12} = \frac{4}{12}$ can be simplified to $\frac{1}{3}$

$\frac{4}{5} + \frac{4}{5} = \frac{8}{5}$ can be changed to the mixed number $1\frac{3}{5}$

If the fractions do not have the same denominator, you need to change one or both of them to **equivalent fractions**.

$$\frac{3}{10} + \frac{4}{5} = \frac{3}{10} + \frac{8}{10} = \frac{11}{10} = 1\frac{1}{10}$$

Adding and subtracting mixed numbers

You need to add or subtract the whole number part of the second number first.

$$4\frac{3}{7} + 2\frac{2}{7} = 4\frac{3}{7} + 2 + \frac{2}{7} = 6\frac{3}{7} + \frac{2}{7} = 6\frac{5}{7}$$

With mixed number subtractions, take care if the second fraction is larger than the first.

$$5\frac{2}{7} - 1\frac{4}{7} = 5\frac{2}{7} - 1 - \frac{4}{7} = 4\frac{2}{7} - \frac{4}{7} = 3\frac{5}{7}$$

Test yourself

Answer these, giving answers as simplified proper fractions or mixed numbers.

1. **a** $\frac{4}{9} + \frac{1}{9} =$ **b** $\frac{9}{10} - \frac{2}{10} =$ **c** $\frac{5}{12} + \frac{1}{12} =$ **d** $\frac{7}{8} - \frac{5}{8} =$
2. **a** $\frac{9}{10} - \frac{4}{5} =$ **b** $\frac{3}{4} - \frac{3}{8} =$ **c** $\frac{11}{12} - \frac{2}{3} =$ **d** $\frac{3}{4} - \frac{1}{5} =$
3. **a** $2\frac{5}{6} - 2\frac{1}{6} =$ **b** $5\frac{2}{5} - 1\frac{3}{5} =$ **c** $7\frac{3}{4} + 1\frac{2}{3} =$ **d** $8\frac{3}{7} - 5\frac{4}{7} =$

Remember

Make sure the fractions have the same denominator before you begin. You only need to add or subtract the numerator.