

Maths- Fractions

Learning objective; To add and subtract fractions with the same denominator.

Warm up- fractions of a shape.

What fraction of each shape has been shaded?

You need to partition the **whole** of the shape into **equal** parts.

The amount of parts determine your **denominator**. **30**

Question: What fraction of the flag is blue? **14/30**

The parts which are blue determine your **numerator**. **14**



The shapes and their shaded portions are:

- 1. A parallelogram divided into 4 equal quadrants by a horizontal and a vertical line. 2 quadrants are shaded blue.
- 2. A rectangle divided into 3 equal horizontal strips. The middle strip is shaded blue.
- 3. A right-angled triangle divided into 2 equal parts by a horizontal line from the top vertex to the vertical side. The top part is shaded blue.
- 4. A square divided into 4 equal quadrants by a horizontal and a vertical line. 3 quadrants are shaded blue.
- 5. A vertical rectangle with wavy top and bottom edges, divided into 3 equal horizontal sections. The top and bottom sections are shaded blue.
- 6. A large triangle divided into 4 equal smaller triangles by lines from each vertex to the midpoint of the opposite side. 3 of the smaller triangles are shaded blue.

What is a fraction?

A fraction is defined as;

- Part of a **whole**.
- A figure or set of items which has been partitioned **equally**.

They have **numerators** and **denominators** to determine how the whole of something (all of it) is being split equally and how much of it is being represented (coloured/added/used).

Quick reminder...

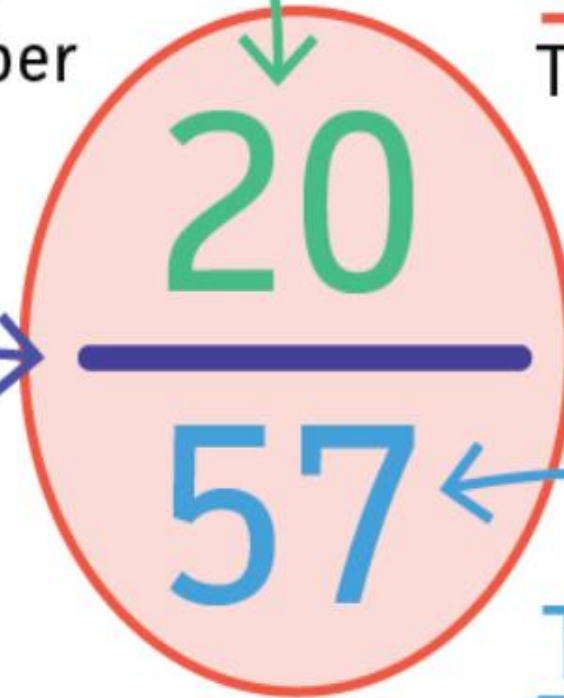
The Numerator

The top half of the **fraction**. The number of parts you have.

The Fraction

The whole thing!

The line that separates the **numerator** and the **denominator** (doesn't have a name).



The Denominator

The bottom half of the **fraction**. The number of parts in a whole.

Adding fractions- with the same denominators

Today we are going to introduce adding fractions.

It starts nice and easy.

If 2 fractions have the same denominator they can be added easily.

Simply add the 2 numerators together and leave the denominator the same.

Look at this video for some clear examples; <https://www.youtube.com/watch?v=aMJZXKRhEzE>

To add...

$$\frac{1}{5} + \frac{2}{5}$$

Just add up the numerators

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

Fluency- copy and complete in your book

$$1) \quad \frac{5}{8} + \frac{1}{8} = \frac{\quad}{8}$$

$$2) \quad \frac{4}{10} + \frac{4}{10} = \frac{\quad}{10}$$

$$3) \quad \frac{3}{7} + \frac{2}{7} = \frac{\quad}{7}$$

$$4) \quad \frac{4}{3} + \frac{3}{3} = \frac{\quad}{3}$$

$$5) \quad \frac{5}{9} + \frac{3}{9} = \frac{\quad}{9}$$

$$6) \quad \frac{3}{4} + \frac{2}{4} = \frac{\quad}{4}$$

$$7) \quad \frac{4}{12} + \frac{7}{12} = \frac{\quad}{12}$$

$$8) \quad \frac{4}{5} + \frac{3}{5} = \frac{\quad}{5}$$

$$9) \quad \frac{3}{6} + \frac{7}{6} = \frac{\quad}{6}$$

$$10) \quad \frac{4}{9} + \frac{8}{9} = \frac{\quad}{9}$$

Some answers may give you an **improper fraction**, this is when the numerator is larger than the denominator, we will look carefully at these in the future.

Reasoning

Zoe thinks she has got the correct answer for this calculation.

$$\frac{3}{9} + \frac{2}{9} = \frac{5}{18}$$



Is she correct? Explain why.

How many different ways can you find to solve the calculation?

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{11}{9}$$

Fluency- subtraction

If the denominators are the same, we simply need to apply the same method as addition.

Leave the denominator the same and subtract the numerators.

$$1. \frac{3}{14} - \frac{1}{14}$$

$$5. \frac{9}{11} - \frac{6}{11}$$

$$9. \frac{9}{14} - \frac{9}{14}$$

$$2. \frac{11}{12} - \frac{5}{12}$$

$$6. \frac{7}{10} - \frac{7}{10}$$

$$10. \frac{2}{3} - \frac{1}{3}$$

$$3. \frac{11}{13} - \frac{9}{13}$$

$$7. \frac{6}{13} - \frac{6}{13}$$

$$11. \frac{1}{10} - \frac{1}{10}$$

Plenary

Have a go at these fraction word problems.

Rachel eats $\frac{7}{8}$ of a pizza. Jenny eats $\frac{4}{8}$. How much do they eat altogether?

Rachel eats $\frac{7}{8}$ of a pizza. Jenny eats $\frac{4}{8}$ less. How much do they eat altogether?

Rachel eats $\frac{7}{8}$ of a pizza. Jenny eats $\frac{3}{8}$ less. How much does Jenny eat?

Answers

Fluency addition

6/8 8/10 5/7 7/3 8/9 5/4 11/12 7/5 10/6 12/9

Reasoning

Zoe has added the denominators, she should have left them the same.

The denominator should be 9, the numerator can be any number bond of 11. e.g. $4/9 + 7/9 = 11/9$

Fluency subtraction

2/14 3/11 0/14 6/12 0/10 1/3 2/13 0/13 0/10

Plenary

11/8 3/8 4/8