

Maths- Fractions

This lesson will be live on teams for
your class at;

9am-5L

10am-5H

11am-5M

Learning objective; To add mixed number fractions
with the same denominator.

Warm up-

$$1. \quad \frac{6}{7} - \frac{3}{7} =$$

$$2. \quad \frac{3}{8} + \frac{3}{8} =$$

$$3. \quad \frac{3}{4} - \frac{1}{4} =$$

$$4. \quad \frac{3}{10} + \frac{5}{10} =$$

$$5. \quad \frac{7}{12} - \frac{4}{12} =$$

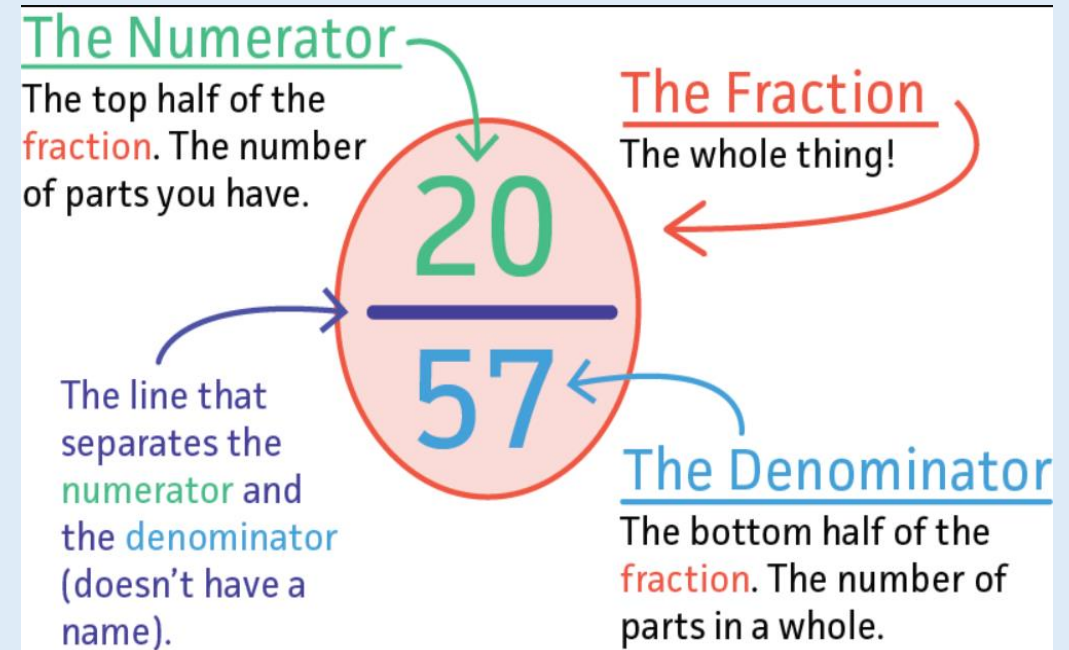
$$6. \quad \frac{3}{7} + \frac{3}{7} =$$

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).



Giving fractions the same denominator

As we can see, adding and subtracting fractions is simple when they have the same denominator.

If the denominators are different it gets more complicated.

We will need to give them the same denominator.

Today we are going to use our knowledge around multiples to make two fractions with different denominators much easier to work with.

Using the (LCM) Lowest common multiple.

Multiples are the extended times table of a number.

Common multiples are numbers found in two or more numbers times tables.

What are the common multiples of 3 and 5?

First, I would list the multiples of 3- 3 6 9 12 15 18 21 24 27 30

Then, I would list the multiples of 5- 5 10 15 20 25 30

Next, highlight/circle the common multiples;

3- 3 6 9 12 **15** 18 21 24 27 **30**

5- 5 10 **15** 20 25 **30**

Which one is the LCM? 15

What is the LCM of?

Find the least common multiple of each pair of numbers.

1) 9, 15

$$\text{LCM}(9, 15) = \underline{\hspace{2cm}}$$

3) 18, 3

$$\text{LCM}(18, 3) = \underline{\hspace{2cm}}$$

5) 9, 21

$$\text{LCM}(9, 21) = \underline{\hspace{2cm}}$$

2) 4, 8

$$\text{LCM}(4, 8) = \underline{\hspace{2cm}}$$

4) 22, 6

$$\text{LCM}(22, 6) = \underline{\hspace{2cm}}$$

6) 2, 3

$$\text{LCM}(2, 3) = \underline{\hspace{2cm}}$$

Using LCM to find a common denominator

We can use our ability to find the LCM to make fractions have the same denominator.

Step 1. find the LCM of your two denominators.

Step 2. With fraction 1, count how many times you had to multiply the denominator to reach the LCM.

Step 3. Multiply the numerator and denominator of fraction 1 by the amount of times you had to multiply to find the LCM.

Step 4. Repeat this with fraction 2 (if necessary).

Step 5. Add fractions normally.

Step 6. simplify by find the GCF of both numbers and dividing the numerator and denominator by that.

Examples on the board:
However, we are going to look at an easier method.

Another method to add unlike fraction

One simple way to find a common denominator is to multiply fraction 1 by the denominator of fraction 2 and fraction 2 by the denominator of fraction 1.

Sounds confusing; lets find out.

$\frac{2}{5}$ and $\frac{3}{4}$

$$2 \times 4 = \underline{8}$$

$$3 \times 5 = \underline{15}$$

$$5 \times 4 = 20$$

$$4 \times 5 = 20$$

So now we have ; $\frac{8}{20}$ and $\frac{15}{20}$ so we can add them normally.

$$8 + 15 = 23/20$$

Finally you will need to simplify your answer.

Examples on the board

The three steps of adding fractions

Solve: $\frac{1}{3} + \frac{1}{6}$

Step 1: Find a common denominator

Common denominator=18

$$\frac{1}{3} + \frac{1}{6} = \frac{1 \times 6}{3 \times 6} + \frac{1 \times 3}{6 \times 3} = \frac{6}{18} + \frac{3}{18}$$

Step 2: Add the numerators (and keep the denominator)

$$\frac{6}{18} + \frac{3}{18} = \frac{6+3}{18} = \frac{9}{18}$$

Step 3: Simplify the fraction

$$\frac{9}{18} = \frac{3}{6} = \frac{1}{3}$$

Divided by 3 Divided by 3



$$\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$$

Fluency

Adding Fractions With Unlike Denominators

$$\frac{1}{4} + \frac{2}{3} =$$

$$\frac{3}{4} + \frac{2}{3} =$$

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

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

The three steps of adding fractions

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Step 3: Simplify the fraction

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Divided by 3 Divided by 3



$$\frac{1}{3} + \frac{1}{6} = \frac{1}{2}$$

Answers

1. $3/12 + 8/12 = \mathbf{11/12}$ – can not simplify because 11 is a prime number.

2. $9/12 + 8/12 = \mathbf{17/12}$ - can not simplify because 17 is a prime number. Converted= $\mathbf{1\ 5/12}$

3. $20/32 + 24/32 = \mathbf{44/32}$ – simplified = $\mathbf{11/8}$ converted= $\mathbf{1\ 3/8}$

4. $15/18 + 12/18 = \mathbf{27/18}$ – simplified = $\mathbf{3/2}$ converted = $\mathbf{1\ 1/2}$