

**Learning Outcome:**

Students should be able to add and subtract fractions and mixed numbers

**Adding and subtracting simple fractions**

We can use **equivalent** fractions to add fractions that do not have the same **denominator**.

For example:

$$\frac{3}{4} + \frac{1}{8}$$

We need to change  $\frac{3}{4}$  into an equivalent fraction with a denominator of 8.

$$\frac{3}{4} = \frac{6}{8}$$

$\times 2$

$\times 2$

Now we have:

$$\frac{6}{8} + \frac{1}{8} = \frac{7}{8}$$

**Denominator** – The bottom number of a fraction.

**Numerator** – The top number of a fraction.

**Equivalent** – The same as.

**Example 17**

(a)  $\frac{1}{2} + \frac{1}{4}$

$$\frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}} + \frac{1}{4}$$

$$\frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}} = \frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$

(b)  $3\frac{5}{6} - 1\frac{1}{6}$

$$\frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}} - \frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$

$$\frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}} = \frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$



**Please copy the step-by-step workings and answers into your notes.**

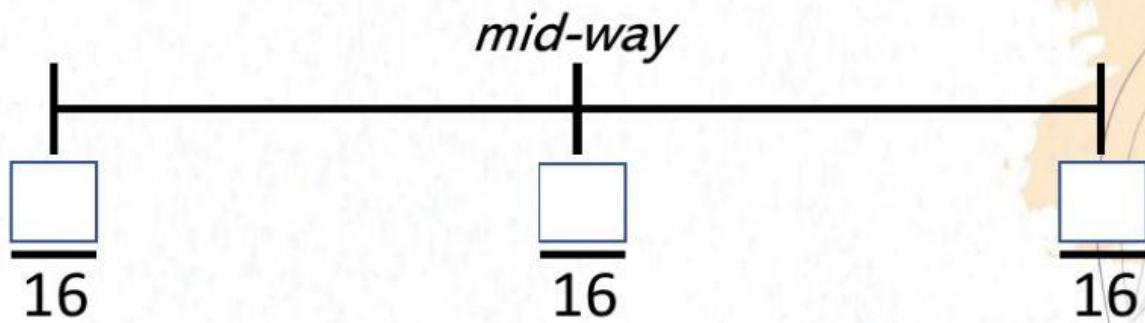
**Example 18:** Find the fraction which is mid-way between  $\frac{3}{8}$  and  $\frac{1}{2}$

Step 1: Change the fractions into an equivalent fraction

$$\frac{3}{8} = \frac{\boxed{\phantom{00}}}{16}$$

$$\frac{1}{2} = \frac{\boxed{\phantom{00}}}{16}$$

Step 2: Find the mid-way



Answer =  $\frac{\boxed{\phantom{00}}}{16}$



**Please copy the step-by-step workings and answers into your notes.**

Example 19:

At a pie-eating contest, Ayden got through  $\frac{2}{3}$  of a pie before time was called. Malek finished just  $\frac{7}{12}$  of a pie. How much more pie did Ayden eat than Malek?

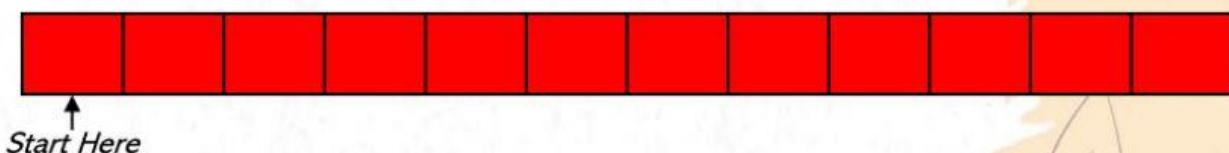
Step 1: Change  $\frac{2}{3}$  into an equivalent fraction with a denominator of 12

$$\frac{2}{3} = \frac{8}{12}$$

Step 2: Create bar model for Ayden and Malek

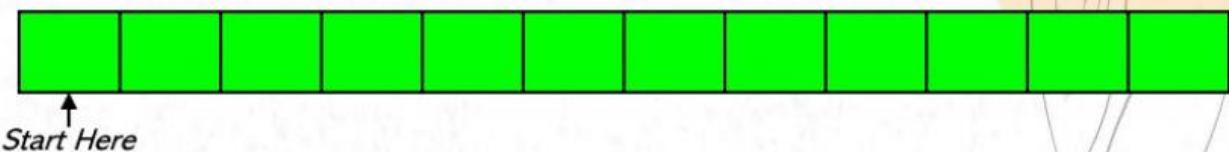
Click on the box to show  $\frac{8}{12}$

Ayden



Click on the box to show  $\frac{7}{12}$

Malek



Step 3:

From the bar model that you clicked in Step 2, how much more pie did Ayden eat than Malek?

Answer =  $\frac{\square}{12}$



**Please copy the step-by-step workings  
and answers into your notes.**

Example 20:

My mother made 6 bowls of pasta. She puts extra cheese on 3 of them.



What fraction of the bowls did not have extra cheese?

**Solution:**

Bowls did not have extra cheese

$$= \frac{\square}{\square} = \frac{\square}{\square}$$

Answer =  $\frac{\square}{\square}$



**Please copy the step-by-step workings and answers into your notes.**