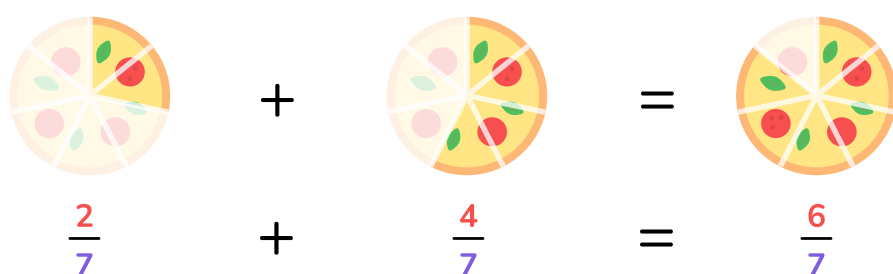




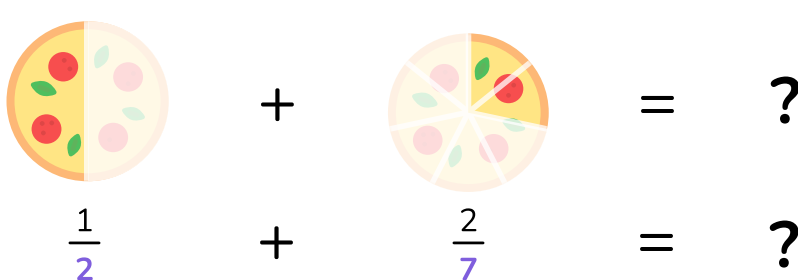
Adding and Subtracting Fractions

When we **add** or **subtract** fractions, we are adding or subtracting **pieces of a whole!**

If our **denominator** (the number at the bottom of the fraction) is the same, we simply add or subtract our **numerators** (the number at the top of the fraction).



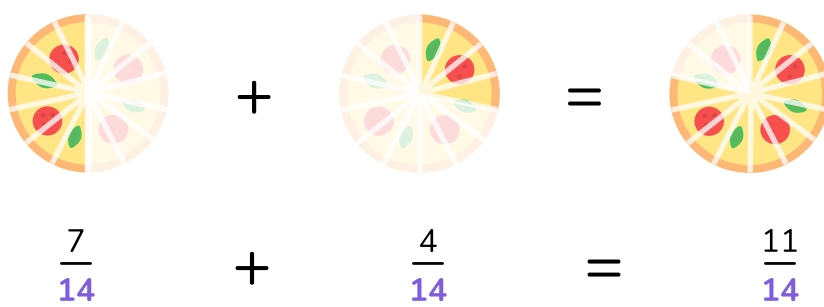
If our **denominators** are different, we need to find **equivalent fractions**. Look at the example below:



We want $\frac{1}{2}$ and $\frac{2}{7}$ to have the **same denominator, 14**.

$$\frac{1}{2} \xrightarrow{\times 7} \frac{7}{14} \quad \frac{2}{7} \xrightarrow{\times 2} \frac{4}{14}$$

Now that both fractions have the same **denominator** we can simply add their **numerators** to get our final answer: $\frac{11}{14}$.



Method

Let's use $\frac{5}{6} - \frac{2}{4}$ as an example, giving our answer in its simplest form.

1 Find the **lowest common multiple** of the **denominators**.

List out the multiples of 4 and 6 until we find the lowest common multiple!

Multiples of 4 = 4, 8, 12, 16, 20...
Multiples of 6 = 6, 12, 18, 24...

Lowest common multiple:
12

Watch out!

We can **multiply** 4 and 6 together to get a common multiple of 24. However we always need to find the **lowest common multiple**, as this will help to simplify our calculations!

2 Find the **equivalent fractions** where the **denominator** is the **lowest common multiple** we just found.

$$\frac{5}{6} \xrightarrow{\times 2} \frac{10}{12}$$

$$\frac{2}{4} \xrightarrow{\times 3} \frac{6}{12}$$

3 Add or subtract the **numerators** of the new equivalent fractions.

$$\frac{10}{12} - \frac{6}{12} = \frac{4}{12}$$

4 If possible, **simplify** the answer.

$$\frac{4}{12} \xrightarrow{\div 4} \frac{1}{3}$$

$$\frac{5}{6} - \frac{2}{4} = \frac{1}{3}$$

Example Question

Ato does two days of training for a fun run.

On the first day, Ato runs $\frac{5}{6}$ miles and on the second day, Ato runs $\frac{7}{8}$ miles.



How much more distance did Ato cover on the second day?

A $\frac{1}{6}$

B $\frac{1}{8}$

C $\frac{1}{12}$

D $\frac{1}{24}$

E $\frac{3}{48}$

1 To find the **difference** between the distances, we need to calculate $\frac{7}{8} - \frac{5}{6}$.

2 Find the **lowest common multiple** of the **denominators**.

Multiples of 6 = 6, 12, 18, 24, 30...
Multiples of 8 = 8, 16, 24, 32...

The lowest common multiple of 6 and 8 is 24.

3 Find an **equivalent fraction** for each fraction so that the new fractions have the **same denominator**.

We need to **multiply** our fractions so that they both have a denominator of 24 (the lowest common multiple).

$$\frac{5}{6} \xrightarrow{\times 4} \frac{20}{24}$$

$$\frac{7}{8} \xrightarrow{\times 3} \frac{21}{24}$$

4 Subtract the **numerators**.

$$\frac{21}{24} - \frac{20}{24} = \frac{1}{24}$$

The correct answer is **D**. Ato covered $\frac{1}{24}$ miles more on the second day!