

How to find two equivalent fractions in a number of fractions

Equivalent Fractions

In this activity we will develop a new skill of finding two or more equivalent fractions in a group of fractions. Remember that, we obtain an equivalent fraction to a given fraction when the numerator and denominator of this given fraction are multiplied (or divided) by a same number, we call this number the **common factor (gcf)**. For example; consider we are given a group of fractions as shown below and we want to find two equivalent fractions in this group. Look at the work I done and you can copy my procedures and practice the problems given in the next worksheet.

Problem: There are two equivalent fractions in the following group of fractions. Find these two equivalent fractions.

$$\frac{2}{3} \qquad \frac{1}{3} \qquad \frac{4}{6} \qquad \frac{3}{4}$$

Solution: To find equivalent fractions in a group of fractions we need to find the relations between numerators and denominators of two fractions, and **if, the numerators and denominators of two fractions getting multiplied (or divided) with the same number then these two fractions are equivalent**. Let's check it out as shown below:

$$\begin{array}{ccc} \frac{2}{3} & \xrightarrow{\div 2} & \frac{1}{3} \\ \text{and} & & \\ \frac{3}{3} & \xrightarrow{\times 1} & \frac{3}{3} \end{array}$$

The numerators are **2 and 1**, therefore, **2÷2 to get 1**. Look at denominators which are 3 each, which is **3x1** to get three. So, numerators and denominators are related by two different operations and hence fractions are not equivalent.

$$\begin{array}{ccc} \frac{2}{3} & \xrightarrow{\times 2} & \frac{4}{6} \\ \text{and} & & \\ \frac{3}{3} & \xrightarrow{\times 2} & \frac{6}{6} \end{array}$$

The numerators are 2 and 4, therefore, **2x2** to get 4. Look at denominators which are 3 and 6, which is **3x2** to get 6. So, numerators and denominators are related by same operation, which is multiply by 2, hence these fractions are **equivalent fractions**.

$$\begin{array}{ccc} \frac{2}{3} & \xrightarrow{\text{No factor}} & \frac{3}{3} \\ \text{and} & & \\ \frac{3}{3} & \xrightarrow{\text{No factor}} & \frac{4}{3} \end{array}$$

Not equivalent

Similarly it can be proved that $\frac{1}{3}$ and $\frac{4}{6}$ are not equivalent fractions.

$\frac{1}{3}$ and $\frac{3}{4}$; $\frac{4}{6}$ and $\frac{3}{4}$ are not equivalent fractions.