Equivalent Fraction

What are Equivalent Fractions?

- Equivalent fractions are fractions that may look different but show the same part of a whole.
- They are equal in value, even if the numerator and denominator are different.

  Example: $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions because both show the same amount.

How to Find Equivalent Fractions?

- Multiply or divide the numerator and denominator by the same number.
- This keeps the fraction's value the same.

Rule:

If you multiply or divide both top and bottom by the same number, the fraction stays equal.

Example: $\frac{1}{2} = \frac{1\times2}{2\times2} = \frac{2}{4}$

Examples with Solutions

Example: What is an equivalent fraction of $\frac{1}{2}$?

Solution: Multiply numerator and denominator by 2

$\frac{1\times2}{2\times2} = \frac{2}{4}$

So, $\frac{1}{2} = \frac{2}{4}$

Example: Are $\frac{3}{6}$ and $\frac{1}{2}$ equivalent?

Solution: Divide both 3 and 6 by 3

3 ÷ 3 = 1, 6 ÷ 3 = 2

So, $\frac{3}{6} = \frac{1}{2}$ → They are equivalent

Example: Find one equivalent fraction of $\frac{2}{3}$

Solution: Multiply numerator and denominator by 2

$\frac{2\times2}{3\times2} = \frac{4}{6}$

So, $\frac{2}{3} = \frac{4}{6}$

Example: Are $\frac{4}{8}$ and $\frac{1}{2}$ equivalent?

Solution: Divide 4 and 8 by 4

$4 \div 4 = 1, 8 \div 4 = 2$

So, $\frac{4}{8} = \frac{1}{2} \rightarrow$ Yes, they are equivalent

Example: Find an equivalent fraction of $\frac{3}{5}$

Solution: Multiply both by 3

$\frac{3\times3}{5\times3} = \frac{9}{15}$

So, $\frac{3}{5} = \frac{9}{15}$

Summary Points

- Equivalent fractions look different but are equal in value
- Multiply or divide both top and bottom numbers by the same value to get an equivalent fraction

  Examples: $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}, \frac{2}{3} = \frac{4}{6} = \frac{6}{9}$
- They help in comparing and adding fractions easily
- Understanding equivalent fractions builds strong fraction sense