# Fractions 

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## Description

The word fraction is derived from the Latin word fractio, which means to break.

A fraction is the indicated quotient of two expressions.

$$
\frac{a}{b} \quad \frac{5}{7} \quad \frac{5 x y}{14 z}
$$

## Arithmetic with fractions

- Equivalent fractions
- Comparing fractions

$$
\begin{aligned}
& \frac{5}{10}=\frac{1}{2}=\frac{10}{20} \\
& \frac{3}{4}>\frac{2}{4} \\
& \frac{4}{5}-\frac{2}{5}=\frac{2}{5} \\
& \frac{1}{2}+\frac{3}{2}=\frac{4}{2}=2 \\
& \frac{1}{4} \times \frac{3}{7}=\frac{3}{28} \\
& \frac{1}{2} \div \frac{1}{4}=\frac{1}{2} \times \frac{4}{1}=2
\end{aligned}
$$

- Subtraction
- Multiplication
- Division


## Forms of fractions

- Common or simple or vulgar fractions. $\frac{1}{2}, \frac{3}{4}, \frac{a}{b}$
- Complex fraction.
$\frac{\frac{1}{2}}{\frac{3}{4}}$
- Proper fraction. $\frac{3}{4}, \frac{7}{9}$
- Improper fraction. $\frac{9}{2}, \frac{8}{6}$
- Mixed fraction.

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

## Reducible and Irreducible fractions

- Any reducible fraction such as $4 / 6$ in which the numenator and denominator have a common factor greater that the unity.
- Any irreducible fraction is a common fraction such as 2/7 in which the numerator and denominator are relatively primes.


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