



Topic: Fractions

Subtopic: Number and Numeration


• JSS2 •

Mathematics





Objective

- Express fractions as ratios, decimals and percentages.
 - Convert simple fractions to ratios, decimals and percentages and vice versa.
 - Solve quantitative reasoning problems related to conversion of fractions to ratios, decimals and percentages.
- 



Express Fractions as Decimal



Fraction

A fraction is a part of a whole. A common fraction is written as one number on top of another number:

Numerator

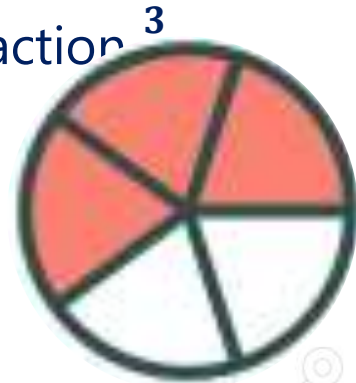
Denominator

The denominator represents all the parts of a whole.

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The fraction $\frac{3}{5}$, each whole is divided into 5 parts.

The numerator represents only the parts of a whole we are dealing with. For example, in the fraction $\frac{3}{5}$ we are dealing with only 3 out of 5 parts.



Types Of Fraction

A **proper fraction** is smaller than 1. The numerator is smaller than the denominator $\frac{5}{8}$.

An **improper fraction** is larger than 1. The numerator is larger than the denominator $\frac{8}{5}$.

An improper fraction may be expressed as a **mixed number**. A mixed number consists of a whole number and a proper fraction, $1\frac{3}{5}$.




Decimal

A decimal fraction has a power of ten as its denominator.

The fraction is written in decimal notation.

In decimal notation, a decimal point separates whole numbers from proper fractions. The fraction is written as a numerator after the decimal point and the denominator is not written down.



For Example

$$\frac{1}{10} = 10^{-1}$$

$$\frac{1}{100} = 10^{-2}$$

$$\frac{1}{1000} = 10^{-3}$$

$$\frac{1}{10000} = 10^{-4}$$

$$\frac{1}{100000} = 10^{-5}$$

Examples 1

Convert 0.65 to a common fraction

Solution

$$= \frac{0.65 \times 100}{100}$$

$$= \frac{65}{100}$$

$$= \frac{65 \div 5}{100 \div 5}$$

$$= \frac{13}{20}$$

Example 2

Convert 205.05 as a mixed number.

Solution

whole number 205 and fraction 0.05

$$= \frac{0.05 \times 100}{100}$$

$$= \frac{5}{100}$$

$$= \frac{5 \div 5}{100 \div 5}$$

$$= 205 \frac{1}{20}$$

Example 3

Convert 0.125 as a common fraction.

Solution

Multiply by 1000

$$= \frac{0.125 \times 1000}{1000}$$

$$= \frac{125}{1000}$$

$$= \frac{125 \div 25}{1000 \div 25}$$

$$= \frac{5 \div 5}{40 \div 5} = \frac{1}{8}$$




Express Percentages as fractions



Percentage

A percentage is a fraction in which the denominator is 100, and where only the numerator is written down, followed by a percentage symbol. **24% means 24 out of 100.**



Example 4

Convert $24\frac{2}{3}\%$ *as a fraction*

Solution

$$= \frac{(24 \times 3) + 2}{3} \%$$

$$= \frac{74}{3} \%$$

$$= \frac{74}{3} \div 100 = \frac{74}{3} \times \frac{1}{100} = \frac{74}{300}$$

$$= \frac{74 \div 2}{300 \div 2} = \frac{37}{150}$$

Example 5

Convert 5.75% *as a fraction*

Solution

$$= 5.75\% = \frac{5.75 \times 100}{100} \text{ decimal notation}$$

$$= \frac{575}{100} \% \text{ *convert to percentage*}$$

$$= \frac{575}{100} \times 100 = \frac{575 \div 25}{10000 \div 25} = \frac{23}{400}$$



Express Ratio and Proportion as fractions

RATIO

Ratio compares two or more quantities or values of the same kind. It can be expressed as a fraction, e.g. $2:3 = \frac{2}{3}$.

It can be expressed in its simplest or lowest term by cancelling, and it does not contain a fraction or decimal in its lowest term.

It is a type of measure of the relative size of two or more quantities expressed as a proportion.

Example 6

A bag of 56 cashew nuts is share between Tunde, Tope and Taiwo in the ratio 2 : 8 : 6. Find their share each.

Solution

Simplify the ratio

$$2 : 8 : 6 = 1 : 4 : 3$$



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$$1 + 4 + 3 = 8$$

$$\text{Tunde share ratio} = \frac{1}{8} \times 56 = 7$$

$$\text{Tope Share ratio} = \frac{4}{8} \times 56 = 28$$

$$\text{Taiwo Share ratio} = \frac{3}{8} \times 56 = 21$$

$$\text{Total Share ratio} = 7 : 28 : 21$$




Evaluation

1. A mother shares ₦2,500 between her three children according to their ages. If they are aged 8 years, 12 years and 20 years, calculate how much money each child will get.
2. Write the following percentages as common fractions.
 - a) 72%
 - b) 115%
 - c) 80.25%

A decorative graphic consisting of a network of nodes and connections. The nodes are represented by small circles, some of which are highlighted in blue or have a blue outline. The connections are thin lines forming a complex web. This graphic is positioned in the corners of the slide, with a larger concentration on the left side and a smaller one on the right side.

— Thank You —