

FRACTIONS

Key Concepts

$$\frac{x}{y} \rightarrow \begin{array}{l} \text{Numerator} \\ \text{Denominator} \end{array}$$

Equivalent fractions have the same value as one another.

Eg. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$

Examples

Calculate $\frac{4}{5}$ of 65:

$$65 \div 5 = 13$$

Divide by the denominator

$$13 \times 4 = 52$$

Multiply this by the numerator

$\frac{4}{5}$ of a number is 52, what is the original number?

$$52 \div 4 = 13$$

Divide by the numerator

$$13 \times 5 = 65$$

Multiply this by the denominator

Order these fractions in ascending order:

$\frac{2}{5}$	$\frac{1}{2}$	$\frac{5}{6}$	$\frac{7}{15}$
↓ ×6	↓ ×15	↓ ×5	↓ ×2
$\frac{12}{30}$	$\frac{15}{30}$	$\frac{25}{30}$	$\frac{14}{30}$
①	③	④	②

To be able to compare fractions we must have a **common denominator**

Key Words

Fraction
Equivalent
Reciprocal
Numerator
Denominator

- 1) Calculate $\frac{2}{7}$ of 56.
- 2) $\frac{3}{8}$ of a number is 36, what is the original number?
- 3) Order the following in ascending order:

$\frac{2}{3}$	$\frac{5}{6}$	$\frac{3}{8}$	$\frac{7}{12}$
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4 OPERATIONS WITH FRACTIONS

Key Concepts

An **improper fraction** is when the numerator is larger than the denominator e.g. $\frac{20}{12}$

Converting from a mixed number into an improper fraction:

$$2 \frac{3}{5} = \frac{(2 \times 5) + 3}{5} = \frac{13}{5}$$

A **reciprocal** is the value that when multiplied by another gives the answer of 1.

Eg. $\frac{1}{8}$ is the reciprocal of 8.
 $\frac{2}{5}$ is the reciprocal of $\frac{5}{2}$

$$1 \frac{2}{3} + 2 \frac{1}{4}$$

$$= \frac{5}{3} + \frac{9}{4}$$

Convert into an improper fraction

$$= \frac{20}{12} + \frac{27}{12}$$

Find a common denominator

$$= \frac{47}{12}$$

$$= 3 \frac{11}{12}$$

Convert back into a mixed number

$$2 \frac{2}{3} - 1 \frac{1}{4}$$

$$= \frac{8}{3} - \frac{5}{4}$$

$$= \frac{32}{12} - \frac{15}{12}$$

$$= \frac{17}{12}$$

$$= 1 \frac{5}{12}$$

$$1 \frac{1}{3} \times 2 \frac{3}{4}$$

$$= \frac{4}{3} \times \frac{11}{4}$$

$$= \frac{44}{12}$$

$$= 3 \frac{8}{12}$$

$$2 \frac{1}{3} \div 1 \frac{3}{5}$$

$$= \frac{7}{3} \div \frac{8}{5}$$

Find the reciprocal of the second fraction...

$$= \frac{7}{3} \times \frac{5}{8}$$

...and multiply

$$= \frac{35}{24}$$

$$= 1 \frac{11}{24}$$

Examples



61, 63-70

Key Words

Fraction
 Equivalent
 Reciprocal
 Numerator
 Denominator
 Improper/Top heavy
 Mixed number

Calculate:

1) $1 \frac{2}{3} + 2 \frac{3}{4}$

3) $3 \frac{1}{5} \times 1 \frac{2}{3}$

2) $3 \frac{3}{4} - 1 \frac{1}{3}$

4) $1 \frac{3}{5} \div 2 \frac{7}{10}$

What is the reciprocal of:

5) $\frac{2}{3}$

7) 0.75

6) 9

ANSWERS 1) $4 \frac{17}{12}$ 2) $2 \frac{11}{12}$ 3) $5 \frac{1}{5}$ 4) $\frac{16}{16}$ 5) $\frac{3}{2}$ 6) $\frac{1}{9}$ 7) $\frac{10}{7}$