

Year 7 - Unit 14: FDP

Learning Journey:

Prior Learning

- Recognise equivalent, improper and mixed fractions, and add and subtract fractions.
- Recall multiplication and division facts and convert between fractions, decimals and percentages.

Next Steps

- Apply fraction skills to ratio, algebra and probability problems.
- Solve multi-step GCSE problems involving fractions, percentages and proportional reasoning.c



By the end of this unit, you should be able to:

- Multiply and divide fractions, including mixed numbers, and solve problems involving fractions.
- Find fractions of amounts and convert fluently between fractions, decimals and percentages (FDP).

Keywords:

Reciprocal – The value of 1 divided by a number.

Mixed number – A whole number and a fraction written together.

Improper fraction – A fraction with a numerator greater than or equal to the denominator.

Equivalent fractions – Fractions that have the same value.

Fraction of an amount – A part of a quantity found by dividing and multiplying.

Percentage – A fraction expressed out of 100.

Multiplying fractions

Multiplying fractions is where we **multiply the numerators** together and **multiply the denominators** together. If there are mixed numbers we must first convert them into improper fractions.

E.g.

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

Multiply the numerators together: $1 \times 1 = 1$

Multiply the denominators together: $2 \times 3 = 6$

So, $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

Reciprocal and dividing fractions

Dividing fractions is where we find the **reciprocal of (flip) the second fraction**, **change the divide sign** to a multiply and then **multiply the fractions** together.

E.g.

$$\frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2}$$

Mixed number multiplying and dividing fractions

$$\frac{5}{9} \div 2\frac{1}{3} = \frac{5}{9} \div \frac{7}{3}$$

$$\frac{5}{9} \times \frac{3}{7} = \frac{15}{63}$$

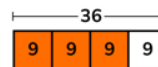
$$\frac{5}{9} \div 2\frac{1}{3} = \frac{5}{21}$$

Fraction of an amount

Fractions of amounts are when we are asked to find a certain fraction of a given amount by multiplication. They are also called finding fractions of numbers. Using a bar model is a useful way of doing this.

E.g.

Calculate $\frac{3}{4}$ of 36



$$\frac{1}{4} \text{ of } 36 = 9$$

So to work out three quarters we multiply this by 3:

$$\frac{3}{4} \text{ of } 36 = 27$$

Fractions	Decimals	Percentages
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$	0.3	33.3%
$\frac{2}{3}$	0.6	66.6%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{1}{10}$	0.1	10%
$\frac{1}{20}$	0.05	5%
$\frac{1}{100}$	0.01	1%

FDP

From → To	Method	Example
Fraction → Decimal	Divide numerator by denominator	$\frac{3}{5} = 3 \div 5 = 0.6$
Decimal → Percentage	Multiply by 100	$0.34 \times 100 = 34\%$
Percentage → Decimal	Divide by 100	$64\% \div 100 = 0.64$
Percentage → Fraction	Put over 100 and simplify	$45\% = \frac{45}{100} = \frac{9}{20}$
Decimal → Fraction	Use place value as denominator	$0.7 = \frac{7}{10}$
Fraction → Percentage	Convert base to 100 OR multiply by 100	$\frac{7}{20} = \frac{35}{100} = 35\%$