

Section 2

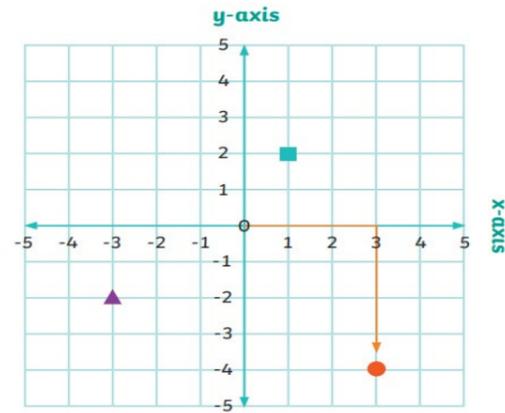
Position and direction

Key Vocabulary

- translate
- translation
- reflect
- reflection
- up
- down
- right
- left
- coordinates
- quadrant
- x-axis
- y-axis
- horizontal
- vertical

Four quadrants

Coordinates can use positive and negative numbers. Whether positive or negative, the x-axis coordinate is written first, followed by the y-axis coordinate.



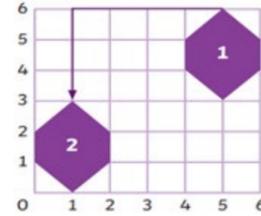
Look at the circle. It is 3 units along the x-axis and 4 down the y-axis. Its coordinates are (3,-4).

Translation

A shape is translated when it is moved without being rotated or resized. Every point of the shape moves the same distance and in the same direction.

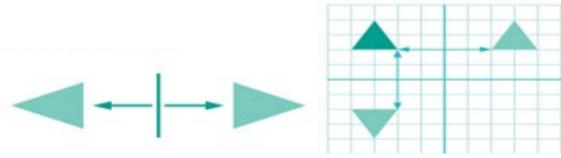


Shape 1 has been translated 4 units left and 3 units down.



Reflections

A shape is reflected when it is flipped over a line which acts as a mirror. Every point on the original shape is the same distance from the mirror line as the same point on the reflected shape. The original triangle has been reflected in the x-axis and in the y-axis.



Section 3

Multiplying and dividing by 10, 100 and 1000

10 000	1000	100	10	1	●	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
					●			

Multiplying

- X 10 digits move LEFT 1 space
- X 100 digits move LEFT 2 spaces
- X 1000 digits move LEFT 3 spaces



Dividing

- ÷ 10 digits move RIGHT 1 space
- ÷ 100 digits move RIGHT 2 spaces
- ÷ 1000 digits move RIGHT 3 spaces



A **decimal** is a number that is not a whole number.

When we write a decimal, we use a **decimal point** between the ones and the tenths.

We use the term **decimal places (dp)** to say how many numbers are after the decimal point.

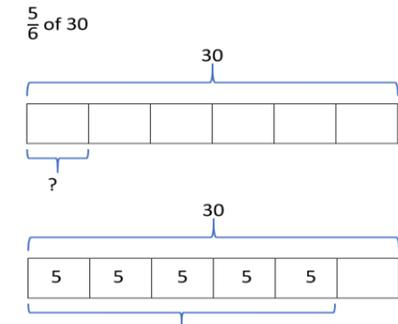
e.g. 4.35 = 2 decimal places (dp) 4.352 = 3 decimal places (dp)

Section 1 Calculating fractions of an amount

To find a fraction of an amount...

- First, divide the amount by the denominator.
- Then multiply this number by the numerator.

You can use a bar model to help you calculate this. e.g.



First divide the amount by the denominator.

$30 \div 6 = 5$

Then multiply this answer by the numerator.

$5 \times 5 = 25$

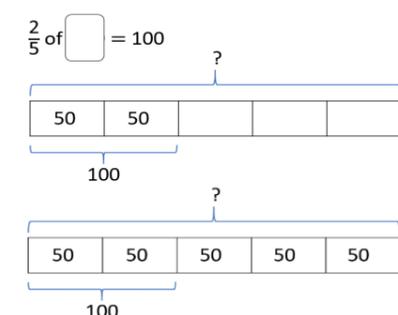
Calculating the whole when given the fraction

Sometimes you will be told the value of the fraction and you need to calculate the value of the whole (or another fraction).

To find the whole when given a fraction...

- First, divide the amount by the numerator.
- Then multiply this number by the denominator.

You can use a bar model to help you calculate this. e.g.



First divide the amount by the numerator.

$100 \div 2 = 50$

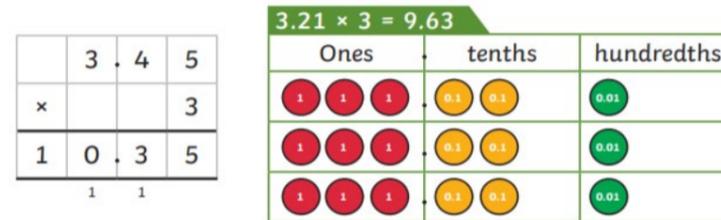
Then multiply this answer by the denominator.

$50 \times 5 = 250$

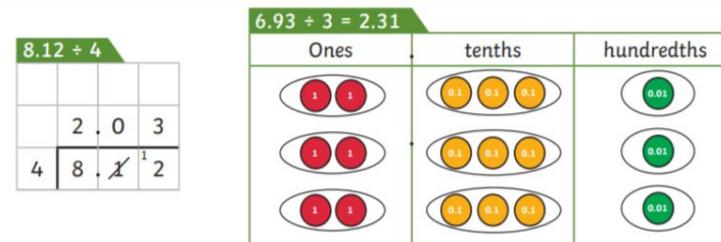
Section 4 Multiplying and dividing decimals by integers

When multiplying and dividing decimals, use the formal method in the same way you would for other multiplication and division questions. However, you must line up the decimal point in the question and the answer.

Multiplying Decimals by Integers



Dividing Decimals by Integers



Remember:

Line up the decimal points in the question and the answer

Section 5 Converting between fractions, decimals and percentages

Conversion	Method	Example
Fractions to decimals	numerator ÷ denominator	$\frac{1}{4} = 1 \div 4 = 0.25$
Fractions to percentages	numerator ÷ denominator x 100	$\frac{1}{4} = 1 \div 4 = 0.25$ $0.25 \times 100 = 25\%$
Decimals to fractions	- write decimal as a fraction over 1 - multiply numerator and denominator by 10 for each decimal digit - simplify	$0.25 = \frac{0.25}{1}$ $\frac{0.25(x100)}{1(x100)} = \frac{25}{100}$ $\frac{25}{100} = \frac{1}{4}$
Decimals to percentages	x 100	$0.25 \times 100 = 25\%$
Percentages to fractions	write as a fraction over 100 then simplify	$25\% = \frac{25}{100} = \frac{1}{4}$
Percentages to decimals	÷ 100	$25\% \div 100 = 0.25$

Common Equivalent Fractions, Decimals and Percentages

These are some common FDP equivalences that you should know.

