



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 1: Working with Numbers

Timetables and charts

Timetables always use the 24-hour clock to show the time, so that you know whether a time is morning or afternoon. It is half past three in the afternoon. See how it can be written and shown.

When you travel on a bus, train or aeroplane you will need to be able to read timetables.

Below is part of the Eurostar timetable for journeys from London to Paris.

If Pierre arrives at the station in London at 09:40, how long does he have to wait for the next train to Paris?

Departure Time	Arrival Time	Duration
09:17	11:47	02 hours and 30 minutes
10:25	12:47	02 hours and 22 minutes
11:31	13:47	02 hours and 16 minutes

The next train is at 10:25, so Pierre has to wait from 09:40 to 10:25 which is 45 minutes.

A **bank statement** gives detailed information about a bank account. It shows how much money has been paid in (**credit**) or out (**debit**) of the account. The amount of money remaining in the account is called the **balance**.



Date	Description	Credit (£)	Debit (£)	Balance (£)
13/12/2016	Starting balance			212.48
14/12/2016	Council tax		128.39	_____
15/12/2016	Salary	856.21		_____

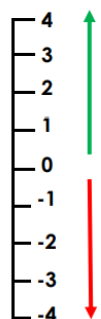
Positive and Negative numbers

If you count backwards from zero, you reach negative numbers.

Positive numbers are any numbers more than zero e.g. 1, 2, 3, 4, 5. Negative numbers are any numbers less than zero e.g. -1, -2, -3, -4, -5.

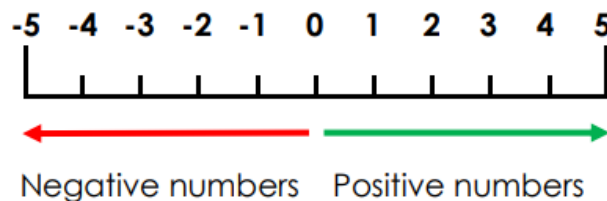
You can use a number line to compare the value of positive and negative numbers.

The number line shows that -5 is smaller than -1. You can also use it to solve problems involving addition and subtraction. See the examples below.



Sometimes you will be asked to use inequality signs to compare numbers. -7 is smaller than -4 so you would write it like this $-7 < -4$

Negative numbers are sometimes shown vertically, such as on thermometers.



Rule	Example
Two like signs become a positive sign	$+(+)$ $3+(+2) = 3 + 2 = 5$
Two like signs become a positive sign	$-(-)$ $6-(-3) = 6 + 3 = 9$
Two unlike signs become a negative sign	$+(-)$ $7+(-2) = 7 - 2 = 5$
Two unlike signs become a negative sign	$-(+)$ $8-(+2) = 8 - 2 = 6$



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 2: Decimal Numbers

Multiplying and dividing by 10,100, 1000

When you multiply by 10, all the digits move one place to the left, e.g. $4 \times 10 = 40$, $4.15 \times 10 = 41.5$

When you multiply by 100, all the digits move two places to the left e.g. $4 \times 100 = 400$, $4.15 \times 100 = 415$

When you multiply by 1000, all the digits move three places to the left e.g. $4 \times 1000 = 4000$, $4.15 \times 1000 = 4150$

You can divide decimals by 10, 100 and 1000 in a similar way, just move all the digits to the right. For example, $37 \div 10 = 3.7$, $37 \div 100 = 0.37$

Ordering decimals

Put the numbers 2.33, 2.03 and 2.304 in order. It can help to put them in a table. Use zeros to fill in the missing decimal places. The smallest is 2.03 as it has no tenths (1/10) which both the other numbers have. Next is 2.304 because it has fewer hundredths (1/100) than 2.33, even though it has the same amount of tenths. So 2.33 is the largest. The correct order is therefore 2.03, 2.304, 2.33.

1000	100	10	1	.	1/10	1/100	1/1000
			2	.	3	3	0
			2	.	0	3	0
			2	.	3	0	4

Adding and subtracting decimals

Is just like adding and subtracting whole numbers.

Just remember to line up the decimal points.

... and don't forget to write the decimal point in your answer!

Dividing Decimals

Dividing Decimals by Whole Numbers: Divide as you would with whole numbers. Then place the decimal point in the answer directly above the decimal point in the question.

Dividing by Decimals: Multiply the divisor by a power of ten to make the divisor a whole number. Then multiply the dividend by the same power of ten. You can think of this as moving the decimal point in the dividend the same number of places to the right as you move the decimal point in the divisor.

$2.4 \div 0.2$, multiply both numbers by 10. $2.4 \div 0.2 = 24 \div 2 = 12$

$0.24 \div 0.03$, multiply both numbers by 100. $0.24 \div 0.03 = 24 \div 3 = 8$

Multiplying decimals

These can be set out using the column method.

Multiply as usual, ignoring the decimal point, before adding it back in at the end.

$$\begin{array}{r} 3.04 \\ \times 6.1 \\ \hline 304 \\ 18240 \\ \hline 18544 \end{array}$$

Set up the problem.

Multiply.

Add.

To determine where to place the decimal point, count the number of decimal places in all factors, and count this many places back in your answer. This will be where the decimal point goes.

Count the total number of decimal places in the factors and insert the decimal point in the product.

$$\begin{array}{r} 3.04 \leftarrow 2 \text{ decimal places.} \\ \times 6.1 \leftarrow 1 \text{ decimal place.} \\ \hline 304 \\ 18240 \\ \hline 18.544 \leftarrow 3 \text{ decimal places.} \end{array}$$

dividend \rightarrow $15 \div 0.2$ \leftarrow divisor



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

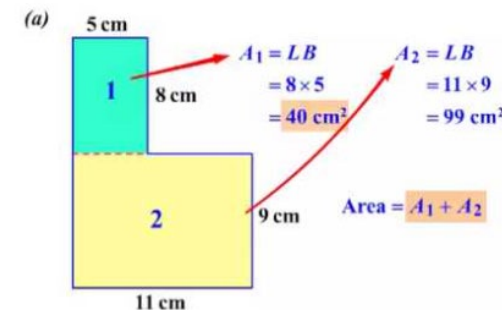
Topic 3: Perimeter, Area and Volume

The **perimeter** of a shape is the total distance around the edge. To calculate the perimeter of a shape you add the lengths of all its sides. The **area** is the space inside a flat shape. One way to calculate the area of shape is to count the number of square centimetres inside it. You can also use a formula to find the area of shape. You will need to recall the formula for the area of a rectangle (Area = base x height)

A **compound shape** is made up from more than one shape. You can work out its area by dividing it into the shapes that make it up. See the example of how to work out the area.

To find the perimeter you need to add together all the outer sides, but be careful as not all the sides are shown. The shown sides are 5cm, 8cm, 9cm and 11cm but you can work out the length is 17cm (8cm + 9cm) and the other missing side is 6cm (11cm - 5cm) so the perimeter is 56cm.

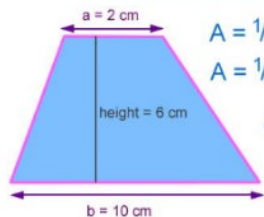
Find the area:



Area of Trapezium

The area of a Trapezium equals half the sum of the parallel sides, times the height between them.

$$A = \frac{1}{2} (a + b) \times h$$



$$A = \frac{1}{2} (a + b) \times h$$

$$A = \frac{1}{2} (2 + 10) \times 6$$

$$A = 36 \text{ cm}^2$$

Learn these formulas!

Area of a triangle: $\frac{1}{2} \times \text{base} \times \text{height}$

Area of a parallelogram: $\text{base} \times \text{perpendicular height}$

Area of a trapezium: $\frac{1}{2} \times (a + b) \times \text{height}$ (See image)

3D shapes where all faces are square are called **cubes**. Their width, length and height are all the same. Shapes that are comprised of rectangles in 3D are called **cuboids**. Their width, length and height can all be different.

This is the formula to find the volume of a cube or cuboid:

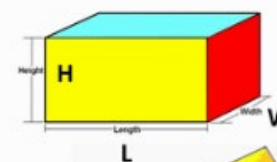
Volume = length x width x height

You can use letters to write this as a formula:

V = L X W X H or V=LWH

A **prism** is a 3D shape that has the same **cross-section** running all the way through it. You can calculate the volume of a prism by multiplying the area of its cross section by the depth (or height) of the prism.

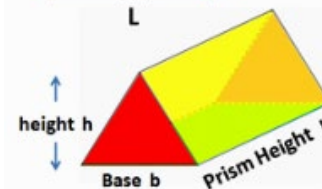
Volume of Prisms - FORMULAS



$$V = L \times W \times H$$

or

$$V = LWH$$



$$V = \frac{1}{2} \times b \times h \times H$$

or

$$V = \frac{1}{2}bhH$$



Vocabulary	Wider Research	Apply
<ul style="list-style-type: none">1) timetable2) positive3) negative4) number5) integer6) inequality7) operation8) decimal9) place value10) multiply11) divide12) calculate13) order14) tenth15) hundredth16) divisor17) dividend18) area19) perimeter20) length21) width22) height23) triangle24) trapezium25) parallelogram26) volume27) cross section28) prism29) compound30) perpendicular	<div></div> <p>Topic 1: Working with Numbers</p> <p>https://corbettmaths.com/2012/08/10/timetables/ https://www.bbc.co.uk/bitesize/guides/z3rk7ty/revision/3 https://corbettmaths.com/2013/06/06/ordering-numbers-including-negatives/ https://corbettmaths.com/2013/06/08/negatives-addition-and-subtraction-2/</p> <div></div> <p>Topic 2: Decimals</p> <p>https://www.bbc.co.uk/bitesize/guides/z27xsbk/revision/1 https://corbettmaths.com/2013/02/15/multiplying-decimals-2/ https://corbettmaths.com/2013/02/15/division-by-decimals/</p> <div></div> <p>Topic 3: Area, Perimeter and Volume</p> <p>https://www.bbc.co.uk/bitesize/guides/z2mtyrd/revision/1 https://www.bbc.co.uk/teach/skillswise/perimeter/zkpxkmm https://www.mathsisfun.com/cuboid.html https://www.mathsisfun.com/geometry/prisms.html</p>	<ol style="list-style-type: none">1. A train departs from Vienna at 06:36 and arrives in Munich at 10:30.<ol style="list-style-type: none">a) How long does the journey take?b) It takes me 45 minutes to walk from home to Vienna station. What time do I need to leave from home in order to arrive in time for the train?c) Adult tickets from Vienna to Munich cost £98 and child tickets cost £53.50. How much do two adult tickets and two child tickets cost altogether?2. Anaya and Euan have parked their car on level -3 of the shopping centre car park. They take the lift to the shops on level +2. Anaya realises she has left her purse in the car so she goes back to get it. Then she returns and meets Euan on level +1. How many floors has Anaya travelled through altogether?3. A meal in a restaurant costs the same for each person. For 7 people the cost is £107.45. What is the total cost for 4 people?4. Write these decimals in ascending order: 50.9, 12.95, 5.38, 5.7, 50.01, 5.14.5. What is the area of a square with sides of 5cm?6. What is the perimeter of a square with sides of 3cm?7. What is the area of a triangle with a base of 8cm and a perpendicular height of 3cm?8. Calculate the volume of a cube with sides of 2cm.9. Find the volume of a cuboid with sides of 4cm, 6cm and 2cm.10. What is the volume of a triangular prism with a cross-section of 24cm² and a length of 8cm?