Study Guide Transcript

Spring 2025

*This study guide transcript has been provided to support learners in following the **Way2Learn Minute Maths** course.*

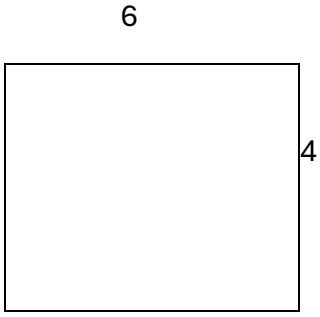
*While the guide serves as a useful resource, we highly recommend that learners watch the course episodes on the **Way2Learn channel** or via the **Video-on-Demand** service to gain a full understanding before completing the answer book.*

*For your convenience, episode times are listed on **page 4 of the answer book**, within the **Way2Learn prospectus** in your library, and in the **quick-glance guide**.*

Episode 1 – Area (of rectangles and triangles)

Today we're going to be talking about **area**. "What's area?" I hear you ask, well it's **the space inside a shape**. I'm going to show you how to calculate the area for a couple of different shapes. Most of them are straightforward.

The first thing I'm going to show you is the **area of a rectangle**. With a rectangle you'll be given two measurements: the length across the top and the width down the side. All you have to do is simply multiply them together (L x W).



In this example the length is 6 and the width is 4, so multiply them together

6 x 4 = 24.

The majority of shapes follow that formula but there is one exception which is the **triangle**. With the triangle you still have two measurements, but you have to do something slightly different.

So, with this example you've got a base and a height, you've still got two measurements. You multiply the base and the height together, but you have to do one thing first: you have to do **half of your base times the height.** In this example the base is 10, so you halve that giving you 5 and you multiply it by the height which is 3 (3x5) this gives you 15.

To clarify, for **rectangles it's length x width** and with **triangles its half the base x height.**

Remember to use the correct unit of measurement for area – either cm^2 or m^2

Episode 2 – Perimeter

(The answer to episode 1's brain teaser: the shape was a square, so all four sides are the same length, so 5x5 = 25.)

The **perimeter** is the **distance around the edge of a shape**.

A rectangle is a **regular shape**: the lengths are the same and the widths are the same.

In this example the length is 6 and the width is 4.

All you do then is add all four sides together.

6 + 6 = 12

4 + 4 = 8

Add them together 12 + 8 = 20.

It couldn't be simpler than that. Whatever your shape is, whether it's a rectangle or a triangle, all you've got to do is add the sides together and that gives you the perimeter.

Remember to use the correct unit of measurement – either cm or m

Episode 3 – Mean

This week we're going to talk about the **mean**. The mean is another way of saying the **average**.

How do you calculate the mean? It's quite simple. You will have a set of data. It might be the results of a survey, the number of points in the premier league football teams, whatever.

To work out the mean all you do is **add all the bits of data** you've got together and then **divide by however many bits of data** you've got.

Example: a survey of how many hours people spent on the internet.

Hours spent on the internet

Monday	Tuesday	Wednesday	Thursday	Friday
4	3	5	2	4

To work out the mean: **4 + 3 + 5 + 2 + 4 = 18**

Then you **divide 18 by 5 gives you the mean**.

It's the same for whatever you're doing so if you've got 10 bits of data, you add all ten together and divide by ten. If you've got 20, do the same, it doesn't matter.

Brainteaser: a bit of a puzzle for you:

A frog falls down a hole that is 30 metres deep. Every day he climbs 3 metres up but every night he falls back down by 2 metres. How many days does it take him before he gets out of the 30 metre holes?

Have a think about it and I'll give you the answer in the next episode.

Episode 4 – Median

(The answer to last episode's problem: the correct answer was 28 days.)

Last episode we talked about the mean as a way of finding the average. Well, there's another way of finding the average and that is called the **median**. You'll often hear the mean and the median being grouped together in the same sentence. It's a way of finding the average and it's slightly simpler than finding the mean because there's not that much maths involved with it.

This what we looked at last week: Hours spent on the internet

Monday	Tuesday	Wednesday	Thursday	Friday
4	3	5	2	4

The first thing you need to do when you're finding the median is no matter what your data is, how many bits you've got to have to **put it into order from smallest to largest**.

So, in this example, it's **2 3 4 4 5**.

The median really simply is the **middle number**. In this case the middle number is number 4. Its really simple. And median sounds a little bit like 'the middle'. So that's another way of finding the average.

Brainteaser: This week's brainteaser is to do with the number 4.

Number four is quite special because the word has four letters, so the number of letters in the word is the same as the number.

My question to you this week is: are there any other numbers in the English language that have the same number of letters as the number they represent?

Episode 5 – Mode

(The answer to last episode's brainteaser is – No! Four is the only word in the English language that has the same number of letters as the number it represents.)

This episode we're carrying on looking at the **average**. We've looked at the mean and the median. Now we're going to look at the most simple average, the **mode**. There's not really much maths involved at all.

Again, we've got our survey of the number of hours spent on the internet.

Monday	Tuesday	Wednesday	Thursday	Friday
4	3	5	2	4

The mode is asking you: what is the **most common number** in your set of data? No matter how many bits of data you have, you could have five like this or 500, whichever number comes up the most, that is the mode.

In this case it's going to be the number 4 because we've got two number 4s (Monday and Friday).

An easy way to remember mode is that it's got four letters and the word 'most' also has four letters. So that's quite an easy way to remember it.

Brainteaser:

My question for you this episode is: take a look at this set of data of how many cars were parked in a car park over a given week.

What would the mode for this set of data be?

Cars in a car park

Monday	Tuesday	Wednesday	Thursday	Friday
10	2	10	5	4

Answer in the next episode.

Episode 6 – Range

(The answer to the last brainteaser: the mode was the most common value, and the answer was 10.)

The **range** is associated with the mean, median and mode and there is some maths involved in it but it's not too taxing at all and it's quite simple to work out. What it's asking is **what is the difference between your lowest bit of data and your highest bit of data**: what is the range between the two numbers?

To work it out, it's quite simple. Again, we've got our survey of the number of hours spent on the internet.

Monday	Tuesday	Wednesday	Thursday	Friday
4	3	5	2	4

The first thing you do is look for the **highest value** – here it is 5 (Wednesday).

Then look for the **lowest value** – here it is 2 (Thursday).

Take away the lowest from the highest: 5 - 2 = 3

The range is 3.

Brainteaser:

Look at this set of data of cars in a car park.

Monday	Tuesday	Wednesday	Thursday	Friday
10	2	3	5	4

What would the range be for this set of data and how would you work it out?

Answer in the next episode.

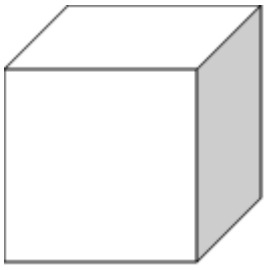
Episode 7 – Volume

(The answer to last episode's brainteaser: The highest value was 10 and the lowest was 2 so the range was 10 – 2 giving a range of 8.)

For this week's edition, I want you to cast your mind back to episode 1 when we looked at the area of a shape. The **area is the space inside a shape**. We're going to be doing something similar today except we're going to be looking at 3D shapes. A 2D shape is a flat shape and a 3D shape is a fat shape, basically if you can pick it up, it's a 3D shape.

We're going to be thinking about a cube and how we can calculate the **volume** meaning **the space inside a cube**.

Have a look at this, you've got 3 measurements:



5 (length) 5 (width) 5 (height)

Very similar to area, to work out the volume of this cube, you **multiply the three together: l x w x h**

In this case 5 x 5 = 25, then multiply it by 5 = 125.

Remember to use the correct unit of measurement for areas – either c3^2 or m^3

Brainteaser:

This week's brainteaser will get you thinking.

In the English language what is only number that when you write it out, its letters are in alphabetical order?

Answer in the next episode.

Episode 8 – Fractions

(The answer to the brainteaser is the number forty. F-O-R-T-Y.)

This episode is about fractions. A **fraction is a part of a whole**. That whole could be a shape, a chocolate bar, it could be a number. I'm going to show you how to find a fraction of a number.

Example:

¼ of 48 =

On ¼, the **numerator** is the top number (1) and the **denominator** is the bottom number (4).

You take the **whole number and divide it by the denominator** which in this case is 48 divided by 4.

48

÷÷

4 = 12

Whether it's a fifth, a tenth a twelfth, whatever the number is, you divide the whole number by the bottom number of the fraction which is the denominator.

Brainteaser:

Here I've got the numbers **1 7 7 7 7**

Can you use **each one of these five numbers once** and any of the operations (**add, multiply, divide or subtract**) to make a **total of 100**?

There are quite few ways of doing it. Answer in the next episode.

Episode 9 – Fractions

(Last episode's challenge was to use 5 numbers (17777) to find 100.)

Last episode I showed you how to calculate fractions if the numerator at the top of the fraction was one. Well, how do we calculate the fraction of a number if the **numerator is something other than one**?

Example:

¾ of 20

The first part is exactly the same: divide the whole number (20) by the denominator (4).

20 ÷ 4 = 5

There's one more step now: you've got to multiply that number by the numerator.

5 x 3 = 15

Brainteaser:

I'm going to read your mind through your television screen

- Think of a number between one and ten.
- Double the number
- Add 6
- Halve the number
- Take away the original number that you started with.

Next episode I'll be able to tell you the number.

Episode 10 – Percentages

(Last week's question – I predict that you came up with the answer 3.)

How to find the percentage of a number is quite simple.

Example: **20% of 200**

The first thing you need to do, take whatever number you need to find the percentage of, divide it by 100.

200 ÷ 100 = 2 (that is one percent)

In this case we're looking for 20%, so we multiply 2 by 20 which gives us the answer of 40.
2 x 20 = 40%

The principle is the same no matter what number you're working on. If you're finding 43%, you divide by 100 and then multiply by 43. The initial step of dividing by 100 finds 1% and then you just multiply by whatever percentage you're looking for.

Brainteaser: this is called the Monty Hall problem

You have won on a gameshow, congratulations!

You are now faced with three doors.

Behind one of the doors is a brand-new car and behind the other two is a goat. Now obviously you want to win the car.

The gameshow host asks you to choose a door. You choose a door, and one of the remaining doors that you don't choose, he opens it and it's got a goat behind it.

He then offers you the chance to swap. Do you want to stick with the door that you originally selected or do you want to change your choice?

In terms of probability what is the best thing to do? Are you better off sticking with the original door or are you better off swapping, or does it make no difference whatsoever?

Think about that and I'll give you the answer next episode.

Episode 11 – Percentages

(I set you the problem from an American gameshow called Monty Hall in the 1960s. In terms of probability, you are more likely to get the car if you switch because originally when you made that decision you had a 1 in 3 chance of getting it right. With the new odds if you switch you've got a 1 in 2 chance of being right.)

Last episode we spoke about percentages, and I showed you how to calculate the percentage of a number. Now we're going to build on that a bit and I'm going to show you how to express one number as a percentage of another.

For example: there are 30 cars in a car park and 6 of them are red.

If the question is what percentage of cars in the car park are red, how would you work that out?

6 are red out of 30 cars. Divide 6 by 30 and then multiply by 100.

630 630

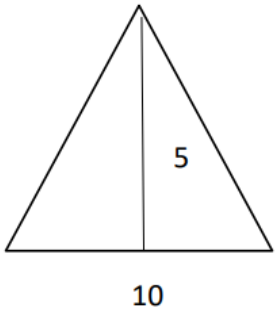
x 100 = 20%

No brainteaser this week.

Episode 12 – Area of a triangle

There are two measurements on a triangle: the **base and the height**.

On this example I've given you a base of 10 and a height of 5



The first thing you need to do is **find ½ of the base** – in this case 5.

Then you **multiply that by the height** – in this case is 5.

5 x 5 = 25

Half of the base times the height gives you the area of a triangle.

Remember to express the correct unit of measurement for area – either cm^2 or m^2

Brainteaser:

I'm going to explain it to you, show it to you and then give you 30 seconds to find the answer.

Which packet of lightbulbs is the best value?

Answer given on the programme