

*"Success is not final, failure is not fatal: it is the courage to continue that counts."*  
- Winston Churchill

## Year 10 Higher W&AW 2 Revision Topics

These are the topics that you have covered so far this year. These topics, if they appear on the assessment will be the ones that your teacher will be looking closely at how well you answer them.

Topic	Sparx Maths Independent Practice Codes
Rounding & Estimating	U480, U298, U731, U965, U225
Area	U993, U265, U970, U945, U424
Perimeter	U351, U993
Volume	U786, U174, U484, U915, U116, U617
Surface Area	U142, U464, U523, U893, U929, U259, U871
Prime Factorisation	U739
Indices	U299, U985, U772
Surds	U633, U338, U707, U281, U499, U872
Simplifying Expressions	U105, U662
Expanding	U179, U768
Factorising	U365, U178, U963
Solving Equations	U505, U755, U325, U870,
Rearranging Formulae	U556
Factorising Quadratics	U178, U858
Solving Quadratics	U228, U960
Quadratic Formula	U665
Completing the Square	U397, U589
Fractions, Decimals & Percentages	U888, U594

**NOTE:** There will be other topics covered in the assessments, some are untaught topics, some are topics that have been taught at KS3. This is to help you work on your exam skills of scanning for the questions you are able to access which is a key skill to do well in your maths GCSE exam.

*"Success isn't overnight. It's when every day you get a little better than the day before. It all adds up"* - Dwayne Johnson

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Topic	Sparx Maths Independent Practice Codes
Percentages	U554, U349, U773, U671
Fractions	U881, U916, U736, U475, U544
Ratio	U687, U753, U577, U921, U676
Proportion	U721, U610
Pythagoras' Theorem	U385
Right-Angled Trigonometry	U605, U283, U545, U627
Bounds	U587
Standard Form	U330, U534, U290, U264, U161
Speed	U151
Distance Time Graphs	U462
Cylinders, Cones & Spheres	U464, U915, U116, U523, U617, U893, U484, U871
Density	U910
Pressure	U527
Cumulative Frequency	U182, U642, U507
Box Plots	U879, U837, U507
Histograms	U814, U983, U267
Sequences	U489, U958, U206

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# How to Log Into Sparx Maths

## Sparx Maths

### Student Login

You're logging in to Sparx at **Ormiston Chadwick Academy**.  
[Not your school?](#)

Log in using your username and password.

Your username will usually be your name and surname without spaces.

Log in to Sparx using Microsoft

or

**Use your Sparx login**

Username:

Password:  
 [Show](#)

[Forgotten Sparx login details?](#) Log in

If you are logged into your school emails on the device, you can just click this button to log in

If you can't remember your password, click this button and type in your details – this will send an email to your teacher getting them to reset your password.

Click the button again in a short while and it will then let you reset your password (make it memorable)

If you have never logged in before, click this button and follow the steps

You will then be brought to the following page where you will find any compulsory homework set for you by your teacher – you need to be completing this weekly to ensure you are retrieving the knowledge that you have learnt throughout the year.

Sparx MathsO XP Teacher

- Compulsory
- XP Boost
- Target
- Independent Learning

## Hey Teacher,

This is your personalised Compulsory homework. You need to answer every question correctly to complete it.

Introducing Sparx Maths Not started

About Sparx Maths

(1:35)

Start >

Try some questions

(about 5 minutes)

Locked

Sparx Maths Tips

(0:39)

Locked

If you haven't been on Sparx Maths yet this year, you will need to do this short tutorial to help you understand how the website works.

# How to do Sparx Maths independent Practice

**Sparx Maths** Hey Teacher, This is your personalised Compulsory homework. You have 0/1

On this dropdown, you can change the curriculum level (Sparx Maths sometimes categorises things at a different stage than we do)

You can change the difficulty level to suit your confidence level

From the homepage, click the 'Independent Learning' tab to open this page.

XP Boost  
Target  
Independent Learning

Introducing Sparx Maths (Not started)

About Sparx Maths (1:35) Start >

Try some questions (about 5 minutes) Locked

Sparx Maths Tips (0:39) Locked

Activate Windows  
Go to Settings to activate Windows.

**Sparx Maths** Independent Learning

Independent Learning

Find topics My activity

Type in the code from the revision list to bring up the revision for that topic

Search for topics: M354 Your curriculum: Key Stage 3 Default level: Level 3

1 topic found

Number > Dividing  
Using a written method to divide integers - M354

Ratio and Proportion 3:2

Geometry

Probability

Statistics

**Sparx Maths** Independent Learning

Independent learning > Number > Dividing

Using a written method to divide integers - M354 Level 2

Show building blocks

Using a written method to divide integers

This will bring up the task - click on each question to revise the topic in more depth

If you are finding it difficult you can try some of the 'building blocks' tasks which will help you with the prior knowledge you need to access the main task

Introduce Question 1 Answer Question 2 Answer Question 3 Answer

Strengthen Question 1 Answer Question 2 Answer Question 3 Answer

Deepen Question 1 Answer Question 2 Answer Question 3 Answer

# How to complete a Sparx Maths task

BEFORE beginning the task you need to have paper to do your working out and to write down the bookwork codes.

The screenshot shows the Sparx Maths interface for a task titled "Using a written method to divide integers - M354". The interface includes a navigation bar with "Independent Learning", "Number", and "Dividing". Below the title, there is a "Level 2" indicator. A "Show building blocks" dropdown menu is open, revealing three sections: "Introduce", "Strengthen", and "Deepen". Each section contains three "Question" buttons and one "Answer" button. A lightbulb icon is positioned to the right of the "Strengthen" section.

This will bring up the task – click on each question to revise the topic in more depth

If you are finding it difficult you can try some of the 'building blocks' tasks which will help you with the prior knowledge you need to access the main task

The screenshot shows a task page with a grid for working out. The text says "Copy out the calculation below as neatly as you can. Work out the answer." The calculation is  $2 \overline{)82}$ . To the right is a multiplication table:

1	×	2	=	2
2	×	2	=	4
3	×	2	=	6
4	×	2	=	8

Below the grid are buttons for "Zoom" and "Watch video". A "Bookwork code: 1A" is displayed at the top. A "Calculator not allowed" icon is also present. An "Answer" button is at the bottom right.

Write down the bookwork code before starting the question (you will be asked for this later)

If you are stuck, watch the video which will be a similar question with different numbers – make notes to help you understand and then try the question again

Work out the answer on your paper, note it down then click here to type in your answer

"Mistakes are the stepping stones to wisdom." - Oprah Winfrey

## Some Key Examples for Questions we have covered that can come up

To find the LCM without needing to keep listing them:

**STEP 1:** Express the numbers as products of their prime factors

**STEP 2:** Draw a Venn diagram.

e.g. find the LCM of 24 and 36

24 =  $2 \times 2 \times 2 \times 3$       36 =  $2 \times 2 \times 3 \times 3 \times 3$

LCM = multiply all the numbers in the Venn diagram  
 LCM =  $2 \times 2 \times 2 \times 3 \times 3 = 72$

To find the area of a sector:

$$\frac{\text{angle}}{360^\circ} \times \pi \times r^2$$

e.g.

Find the area

The fraction of the whole circle      The area of the circle

$\frac{40}{360} \times \pi \times 6^2$

= 12.57cm<sup>2</sup>

e.g. Factorise  $6x^2 + 17x + 12$

**STEP 1:** Multiply the integer term by the coefficient of  $x^2$        $6 \times 12 = 72$

**STEP 2:** Find a pair of this numbers' factors that add to make the  $x$  coefficient

**STEP 3:** Rewrite the equation with these two factors

**STEP 4:** Factorise by grouping

$6x^2 + 17x + 12$   
 =  $6x^2 + 8x + 9x + 12$   
 =  $2x(3x + 4) + 3(3x + 4)$   
 =  $(2x + 3)(3x + 4)$

**TIP:** Fractional indices are just another way of writing roots

e.g.

The power  $\frac{1}{2} = \sqrt{\quad}$

The power  $\frac{1}{3} = \sqrt[3]{\quad}$       **TIP:** Work out the root (denominator) first

The power  $\frac{1}{4} = \sqrt[4]{\quad}$

The power  $\frac{1}{4} = \sqrt[5]{\quad}$

e.g.  $16^{\frac{3}{2}} = (16^{\frac{1}{2}})^3 = 4^3 = 64$

For the surface area, draw out each individual face, work out the areas then add them together.

e.g.

Front =  $2 \times 4 \div 2 = 4\text{cm}^2$   
 Back =  $2 \times 4 \div 2 = 4\text{cm}^2$   
 Bottom =  $4 \times 7 = 28\text{cm}^2$   
 Left side =  $3 \times 7 = 21\text{cm}^2$   
 Right side =  $3 \times 7 = 21\text{cm}^2$

**TIP:** Remember to  $\div 2$  for triangles

Total Surface Area =  $78\text{cm}^2$

**TIP:** When substituting, 'swap' the letter for the number (use brackets)

e.g.

$3a - 2b$  given that  $a = -3, b = -4$

$3(-3) - 2(-4) = 9 + 8 = 17$

**TIP:** Multiply the number outside the bracket by the number inside the bracket

**TIP:** When multiplying and dividing with directed numbers:

**TIP:** If operations are directly next to each other (and no numbers in between), use the following rules:

**TIP:** If the index (power) is negative, it means the reciprocal

e.g.

$5^{-2}$  means the reciprocal of  $5^2$   
 so  $\frac{1}{25}$

$16^{-\frac{1}{2}}$  means the reciprocal of  $16^{\frac{1}{2}}$   
 so  $\frac{1}{4}$

**TIP:** Think of square numbers that are factors of the number in the surd

e.g.

$\sqrt{72} = \sqrt{9 \times 8}$   
 =  $\sqrt{9} \times \sqrt{8}$   
 =  $3\sqrt{8}$   
 =  $3\sqrt{4 \times 2}$       **TIP:** Continue until there are no more square factors  
 =  $3 \times \sqrt{4} \times \sqrt{2}$   
 =  $3 \times 2 \times \sqrt{2}$   
 =  $6\sqrt{2}$

**TIP:** Rationalise the denominator means to make the bottom number not a surd.

**TIP:** If there are two terms, remember to change the sign (this makes the surds cancel)

e.g.

$\frac{2 + \sqrt{2}}{4 - \sqrt{2}} = \frac{2 + \sqrt{2}}{4 + \sqrt{2}} \times \frac{4 - \sqrt{2}}{4 - \sqrt{2}}$

=  $\frac{10 + 6\sqrt{2}}{14}$       **TIP:** Use the grid method to multiply two terms by two terms

=  $\frac{5 + 3\sqrt{2}}{7}$

**TIP:** Remember a quadratic equation needs to = 0 before you factorise it!

$6x^2 + 17x + 12 = 0$   
 $6x^2 + 8x + 9x + 12 = 0$   
 $2x(3x + 4) + 3(3x + 4) = 0$   
 $(2x + 3)(3x + 4) = 0$

**TIP:** For two things to multiply together to = 0, one of the things must be zero

$2x + 3 = 0$        $3x + 4 = 0$   
 $2x = -3$        $3x = -4$   
 $x = -\frac{3}{2}$        $x = -\frac{4}{3}$

**TIP:** Unless the bracket is the same, there will be 2 answers when solving a quadratic

e.g. Make  $x$  the subject of  $5x - 2y = tx + 3$

**STEP 1:** Get all the 'subject' onto one side

$5x - 2y - tx = 3$

**STEP 2:** Move everything else to the other side

$5x - tx = 3 + 2y$

**STEP 3:** Factorise the side where the 'subject' is - ONLY take out the subject

$x(5 - t) = 3 + 2y$

**STEP 4:** Divide by the bracket

$x = \frac{3 + 2y}{5 - t}$

**TIP:** Get rid of the smallest letter first

e.g.

Solve  $4a + 3 = 2a + 15$

$-2a$        $-2a$

$2a + 3 = 15$

$-3$        $-3$

$2a = 12$

$\div 2$        $\div 2$

$a = 6$

The most important thing to remember is not to give up - if you write nothing for a question, you will definitely get it wrong, so have a guess, you will get marks for working out.