



# Learn to Learn Mathematics

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**Exam board:**

**Edexcel**

1MA1 GCSE Maths is studied either at Higher or Foundation level.

Both tiers of entry consist of 3 papers:

Paper 1 - Non-calculator

Paper 2 - Calculator

Paper 3 – Calculator

All 3 papers are 90 minutes long and carry equal weighting (80 marks each, total of 240 marks)

Tier	Topic area	Weighting
Foundation	Number	22 - 28%
	Algebra	17 - 23%
	Ratio, Proportion and Rates of change	22 - 28%
	Geometry and Measures	12 - 18%
	Statistics & Probability	12 - 18%
Higher	Number	12 - 18%
	Algebra	27 - 33%
	Ratio, Proportion and Rates of change	17 - 23%
	Geometry and Measures	17 - 23%
	Statistics & Probability	12 - 18%



Heaviest weighting



Heaviest weighting

## Current structure of Year 10/11 groups:

Higher Groups

11a/Ma1 – Aiming for 7, 8, 9

11a/Ma2 and 11b/Ma1 – Aiming for 5, 6, 7

Foundation Groups

11a/Ma3 and 11b/Ma2 – Aiming for 4, 5

11b/Ma3 and (10b/Ma4)– Aiming for 4 or below

As you can see there is some overlap and for some students tier of entry is not decided until Year 11.





**Course content:**

Topics in KS3 form the building blocks of GCSE and it can be worth pupils revisiting this content.

GCSE content is covered before April in Year 11.

Lessons after this time concentrate on consolidation, gap fill and exam technique.

Edexcel provide a revision checklist for students to see the content which they could be tested on in their GCSE papers.



# GCSE Maths Revision Checklist - Foundation

Unit	Unit / Topic	Complete
1	<b>Integers and place value</b> Types of number Use and order positive and negative numbers Use inequality symbols Four operations using positive and negative numbers Round numbers to nearest 10, 100, 1000 and use rounding for estimation	
	<b>Decimals</b> Use decimals and place value Compare and order decimal numbers Four operations using decimal numbers Round to nearest whole number, decimal place & significant figures Use one calculation to check another	
	<b>Indices, powers and roots</b> Find squares and cubes Use index notation including negative powers Use laws of indices to multiply and divide numbers in index form Order of operations including powers and brackets Use of calculator	
	<b>Factors, multiples and primes</b> Identify factors, multiples and prime numbers Find prime factorisation of a number (& write in index form) Find common factors & highest common factor Find LCM of two (or three) numbers	
2	<b>Algebra: the basics</b> Write an expression Collect like terms Simplify expressions Use index laws	
	<b>Expanding and factorising single brackets</b> Expand single brackets Simplify expressions using squares and cubes Factorise expressions	
	<b>Expressions and substitution into formulae</b> Substitute into expressions involving brackets & powers Substitute into a formula (& word formula)	
3	<b>Tables</b> Sort and classify data (inc tally charts) Extract data from lists and tables (inc timetables) Identify mode from a list / table	
	<b>Charts and graphs</b> Know which chart or diagram to use for different data sets Draw and interpret bar charts (inc dual & composite) Draw and interpret line graphs (vertical & time-series) Draw and interpret frequency polygons Draw and interpret pictograms Draw and interpret stem and leaf diagrams	
	<b>Pie charts</b> Draw and use pie charts Find mode & total frequency from a pie chart Compare two pie charts	
	<b>Scatter graphs</b> Draw and use scatter graphs & lines of best fit Identify outliers & correlation	

Unit	Unit / Topic	Complete
4	<b>Fractions</b> Equivalent fractions including simplifying & comparing Express one amount as a fraction of another Convert between mixed numbers and improper fractions Four operations using fractions Find a fraction of an amount	
	<b>Fractions, decimals and percentages</b> Use fraction to decimal conversions Recognise terminating & recurring decimals	
	<b>Percentages</b> Convert between fractions, decimals & percentages Order & compare fractions, decimals & percentages Write one amount as a percentage of another Calculate percentage of an amount Calculate percentage increase/decrease Use decimal increase/decrease	



# GCSE Maths Revision Checklist - Foundation

Unit	Unit / Topic	Complete
5	<b>3D forms and volume</b> Identify and name 3D forms and their properties Volume of a cuboid Volume of a prism Volume of a composite forms	
	<b>Real-life graphs</b> Use coordinates in all four quadrants Midpoints of a line segment Conversion graphs Fixed cost and cost per unit graphs Distance / time and Velocity / time graphs	
	<b>Straight-line graphs</b> Draw, use and interpret (inc gradient) straight line graphs Identify parallel lines Find the equation of a line (including from a graph)	
6	<b>Transformations I: translations, rotations &amp; reflections</b> Transform and describe translations Transform and describe rotations Transform and describe reflections	
	<b>Transformations II: enlargements and combinations</b> Transform and describe enlargements Transform shapes using a combination of transformations Describe transformations when using multiple transformations	
7	<b>Ratio</b> Write ratios in their simplest form (including in context) Share a quantity in a given ratio (including 3-part ratios) Use a ratio to find one quantity when another is known Compare ratios Write ratio in the form 1:n or n:1 Write a ratio as a fraction and vice versa	
	<b>Proportion</b> Use direct & inverse proportion (and recognise graphically) Best value Recipes Currency conversions	
8	<b>Right-angled triangles: Pythagoras and trigonometry</b> Pythagoras' Theorem Trigonometry - sin, cos and tan Know exact trig values	
	<b>Probability I</b> Probability scale Listing outcomes Two-way tables & Frequency Trees Use 1-p	
9	<b>Probability II</b> Relative frequency Sample space diagrams Venn diagrams & set notation Probability tree diagrams	

Unit	Unit / Topic	Complete
14	<b>Multiplicative reasoning</b> Use compound measures: Pressure, Density & Speed Percentage profit / loss Reverse percentages Simple interest Compound interest & growth Depreciation & decay Rates of pay	
	<b>Plans and elevations</b> 3D shape names and properties Sketch 3D forms Draw plans and elevations of shapes Draw a 3D form given its plan and elevations	
15	<b>Constructions, loci and bearings</b> Standard constructions Find regions satisfying a combination of loci Use maps and scale drawings Bearings	
	<b>Quadratic equations: expanding and factorising</b> Expand double brackets Factorise quadratic expressions Solve quadratic equations	
16	<b>Quadratic equations: graphs</b> Plot quadratic graphs Find solutions, intercepts & turning points of a quadratic graph	
	<b>Circles, cylinders, cones and spheres</b> Name parts of a circle Recall & use formula for area and circumference of a circle Arcs and sectors Surface area & volume of a cylinder Spheres, pyramids, cones and composite solids	
17	<b>Fractions and reciprocals</b> Four operations with mixed number fractions Reciprocal of an integer, decimal or fractions	
	<b>Indices and standard form</b> Index laws to simplify & calculate the value of an expression Convert between ordinary numbers and standard form Work with the four operations in standard form Use a calculator with indices and standard form	
18	<b>Similarity and congruence in 2D</b> Use congruence criteria for triangles (SSS, SAS, ASA and RHS); identify similar shapes Identify scale factors and find missing lengths in similar shapes	
	<b>Vectors</b> Understand and use column notation including drawing them Identify parallel column vectors Calculate using column vectors	
19	<b>Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations</b> Know the terms equation, identity, expression etc Change the subject of a formula Answer simple "show that" questions Use inverse proportion involving graphs Recognise and sketch cubic functions Recognise and sketch reciprocal functions Solve simultaneous equations algebraically and graphically	





## Homework:

Homework is set on a weekly basis.

Set on Friday, dur the following Thursday.

The platform we use is Sparx maths

[www.sparxmaths.com](http://www.sparxmaths.com)



Compulsory

### Hey Teacher,

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

0/0



XP Boost



Target



Independent Learning






# Optional Homework in Sparx Maths



- Sparx produces three personalised tasks for you every single week that you have homework to complete
- After you finish your Compulsory homework, refine your skills by completing similar problems in **XP Boost**
- Further enhance your skills by completing the **Target** work which is a set of six questions chosen specifically to challenge you

# Independent learning – take control of your own learning

- Access every single question on Sparx
- Choose one of three levels of question
  -  Introduce: basic skills
  -  Strengthen: improve understanding
  -  Deepen: problem solving
- Do this after Compulsory homework, XP Boost and Target



## Mock Exams:

Mock exams take place in Summer of Year 10, November and March of Year 11.

For Maths Year 11 exams are full papers, graded using grade boundaries from the exam boards.

Students receive a question level analysis of their result. This will form their revision hitlist.

For Summer 2025/26/27 examinations students will receive a formula sheet.



### Higher Tier Formulae Sheet

#### Perimeter, area and volume

Where  $a$  and  $b$  are the lengths of the parallel sides and  $h$  is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2} (a + b) h$$

Volume of a prism = area of cross section  $\times$  length

Where  $r$  is the radius and  $d$  is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

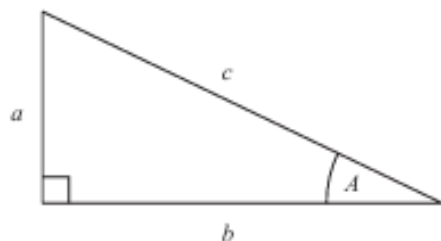
#### Quadratic formula

The solution of  $ax^2 + bx + c = 0$

where  $a \neq 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

#### Pythagoras' Theorem and Trigonometry



In any right-angled triangle where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle  $ABC$  where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

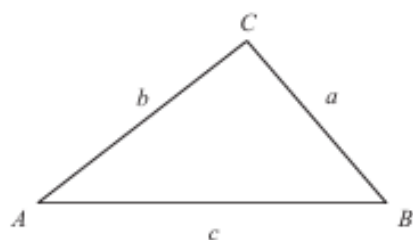
$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

In any triangle  $ABC$  where  $a$ ,  $b$  and  $c$  are the length of the sides:

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of triangle} = \frac{1}{2} ab \sin C$$



#### Compound Interest

Where  $P$  is the principal amount,  $r$  is the interest rate over a given period and  $n$  is number of times that the interest is compounded:

$$\text{Total accrued} = P \left( 1 + \frac{r}{100} \right)^n$$

#### Probability

Where  $P(A)$  is the probability of outcome  $A$  and  $P(B)$  is the probability of outcome  $B$ :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$

END OF EXAM AID

### Foundation Tier Formulae Sheet

#### Perimeter, area and volume

Where  $a$  and  $b$  are the lengths of the parallel sides and  $h$  is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2} (a + b) h$$

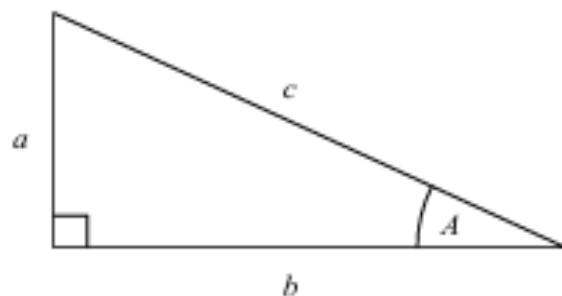
Volume of a prism = area of cross section  $\times$  length

Where  $r$  is the radius and  $d$  is the diameter:

$$\text{Circumference of a circle} = 2\pi r = \pi d$$

$$\text{Area of a circle} = \pi r^2$$

#### Pythagoras' Theorem and Trigonometry



In any right-angled triangle where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle  $ABC$  where  $a$ ,  $b$  and  $c$  are the length of the sides and  $c$  is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

#### Compound Interest

Where  $P$  is the principal amount,  $r$  is the interest rate over a given period and  $n$  is number of times that the interest is compounded:

$$\text{Total accrued} = P \left( 1 + \frac{r}{100} \right)^n$$

#### Probability

Where  $P(A)$  is the probability of outcome  $A$  and  $P(B)$  is the probability of outcome  $B$ :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

END OF EXAM AID

In this paper you achieved:

Mark: 27 / 80

Grade: 5c

**This PLC shows you how best to target your revision by comparing your performance to the average student who achieved a Grade 6.**

If you master the 9 topics in red then you could have achieved an additional 27 marks. This would have resulted in you achieving:

Mark: 54 / 80

Grade: 7b

You achieved a high score for this question and performed better than the average Grade 6 student.

You performed better than the average Grade 6 student but still dropped marks.

You did not perform as well as the average Grade 6 student. You should prioritise these areas.

Your time would be better spent focussed on your Red and Amber questions.

Questions	Question Title	Score	Clip Number(s)
Q01	Divide Decimals	3 / 3	U293
Q02	Calculate exactly with fractions	3 / 3	U793
Q03	Volume cuboids and other right prisms (including cylinders)	0 / 4	U929/U786
Q04	Frequency polygons	1 / 2	U840
Q05a	Venn diagrams	0 / 3	U476
Q05b	Probability from a Venn Diagram	2 / 2	U748/296
Q06a	Scatter graphs	1 / 1	U277
Q06b	Line of best fit	2 / 2	U128
Q07	Percentages problems	0 / 2	U286
Q08	Use compound units	0 / 3	U174U527
Q09	Solve simultaneous equations graphically	1 / 1	U836
Q10	Exterior and interior angles	0 / 4	U427
Q11	Laws of indices	0 / 3	U235/694
Q12	Probability Trees	3 / 3	U558/806
Q13	Direct and inverse proportion	2 / 3	U407/640
Q14a	Negative Indices	1 / 1	U694
Q14b	Fractional Indices	0 / 3	U772
Q15	Graphs and equations of lines	1 / 3	U898
Q16	Surface area of spheres	3 / 4	U893
Q17	Rearrange formulae to change the subject	2 / 4	U556
Q18	Ratio in real context	1 / 4	U595
Q19	Listing strategies/Product rule for counting	0 / 2	U369
Q20a	Inverse functions	1 / 2	U996
Q20b	Composite functions	0 / 3	U448
Q21	Circle theorems	0 / 4	U459/808
Q22	Pythagoras's Theorem and Trigonometry	0 / 2	U170/U319
Q23	Calculate with Surds	0 / 4	U707/281

# QLAs

Compares each students performance with the next grade.

Green – Done better than expected

Amber – Still dropped some marks

Red – PRIORITY!!

Grey – Focus should be elsewhere

Clip Number – Sparx independent learning



## Looking ahead – A Levels:

It is compulsory to study Maths post-16 for anyone who does not achieve a standard pass (4).

A grade 7 is required to study Further Maths.

A grade 6 is required for Maths, Biology, Chemistry, Physics, and Computer Science.

A grade 5 is required for Economics, Geography, Psychology, and PE\*.

A grade 4 is required for Business, Design and Technology, and IT





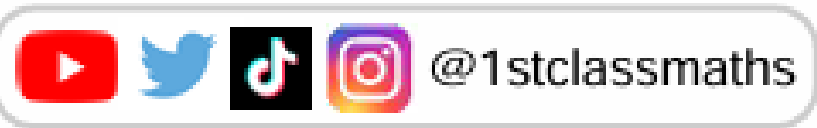
## Revision and Support: In School:

Students will complete lots of exam practice in lessons, this then enables us to see which topics the class needs to cover.

We run past paper club every Tuesday from 3 to 4pm. Where students can revise and complete past papers with a teacher on hand to give extra help when needed.

Homework is extremely important in the run up to the GCSE.

Some students will be selected to complete intervention sessions which will run in form time with different students throughout the year.



## **Revision and Support:**

### **At Home:**

It's never too early to revise!

The best way to revise is to do Maths!

### **Other websites:**

Sparx Maths – Homework/Independent Learning

1<sup>st</sup> Class Maths – Exam style questions on particular topics/papers with video solutions

Mathsgenie.co.uk - Exam style questions on particular topics/papers with worked solutions

Corbett Maths – Practise questions on all topics/5 a day mixed revision/ultimate revision packs

On Maths – Papers online with instant marking



AX-595TV  
Brand: AURORA

## Revision and Support: Parents/Careers:

Encourage your child to complete homework, ensuring they have time and space to do it.

Check they have the right equipment.



eBay  
Casio FX-83GTX Scienti FX-83GT CW (Black)



CASIO · In stock



## Calculators

For the calculator papers students need a scientific calculator. Every brand works differently so it is essential students use a calculator they are familiar with in the exam. In Maths we use Aurora (AX-595TV) calculators and would recommend them, or Casio (FX-83GTX or FX-83GTCW).





**Encouragement**

**Support**

**Place to work**



**Thank you**

**Please feel free to ask any questions**