



# EXAM CHANGES 2022

## GCSE Mathematics (Foundation) Exam Board: AQA

### SUMMARY OF ADAPTATIONS

- Student will be provided with a formulae sheet which can be used in the exam.
- A list of topics has been published for each paper.

### HOW THE SCHOOL IS USING THIS INFORMATION

- Practice and mock exams will be adapted to reflect summer 2022 exams.
- Intervention sessions will focus on the topics for each paper.
- Revision plans that are in student books will be updated.
- Lesson starters are being adapted to reflect that formulae will be given.
- All students will have a copy of the formulae sheet to stick into their Maths book.
- Teaching will focus on the application of mathematics – using the given formulae rather than having to remember the formula itself.
- Students will have a copy of the topic list in their revision work books.
- Revision will be focussed on specific topics for each paper.

### WHAT STUDENTS SHOULD DO

- Ensure that they have a copy of the formulae sheet and use it in Mathematics lessons and when revising.
- Use the list of topics for each paper to identify areas of strength and weakness.
- Follow the revision plan – completing each revision homework.
- Revise the areas identified as an area of weakness – but do not neglect revising topics that are a strength. These are where most marks will be picked up.
- Attend Period 6 Maths support after school every Thursday. Teachers will be delivering specific topics focussed on the GCSE exam. They are also willing to support students with any individual queries for other topics.

# GCSE MATHEMATICS 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:

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

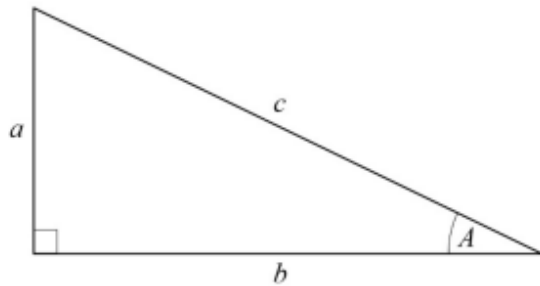
Volume of a prism = area of cross section  $\times$  length

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  $B$ :

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

# MATHEMATICS FOUNDATION PAPER 1 – TOPIC LIST

Topic	Detail
<b>Number</b>	
Arithmetic	Four operations
	Negative Number
	Order of Operations
	Estimation
Fractions	Arithmetic
	Fraction of a number
Indices	Laws of Indices
Standard Form	Conversion
	Calculation
Other	Inequality notation
	Systematic listing
<b>Algebra</b>	
Equations	Linear
Graphs	Recognise
	Plot
	Linear graph
	Intersection of lines
	Interpret
Reasoning	Formula
Sequences	Sequence rule to find a term
<b>Ratio</b>	
Conversions	Lengths
Percentage	Percentage of an amount
	Amount as a percentage
Fraction	Fraction less than 1
Ratio	Simplest form
	Ratio to fraction
Applications	Cost problem
	Density
<b>Geometry &amp; Measures</b>	
Shapes	Naming circle part
	Types of triangle
	Translation
Area and Volume	Perimeter
	Sector of circle
Angles	In triangles
Constructions	Region
<b>Statistics</b>	
Two-way table	
Averages problems	
Outlier	
<b>Probability</b>	
Problem	
Venn Diagram	

# MATHEMATICS FOUNDATION PAPER 2 – TOPIC LIST

Topic	Detail
<b>Number</b>	
Arithmetic	Order of operations
Fractions	Fraction of a number
	Improper fraction
	Fraction to decimal
Properties	Number line decimal
	Number problem
	Prime number
	Cube number
	Decimal place
Other	Inequality notation
<b>Algebra</b>	
Equations	Linear
Manipulation	Equivalent expressions
	Terms
	Multiply out
	Factorisation
Graphs	Coordinates
	Midpoint
	Point on a line
	Intercept of a line
	Gradient of a line
	Equation of a line
<b>Ratio</b>	
Conversions	Time
Percentage	Ratio and percentage
	Percentage increase
	Percentage decrease
Ratio	n : 1 form
Applications	Proportion problem
	Scale diagram
	Better value
	Ratio to percentage
	Equation to percentage
	Rate of output
<b>Geometry &amp; Measures</b>	
Shapes	Draw shape
	Quadrilateral
	Parallelogram
	Part of a circle
	Pythagoras
Measures	Time problem
Area and Volume	Compound shape
<b>Statistics</b>	
Pie chart	
Range	
Mean	
<b>Probability</b>	
Relative frequency	
Expected value	
Tree Diagram	

# MATHEMATICS FOUNDATION PAPER 3 – TOPIC LIST

Topic	Detail
<b>Number</b>	
Properties	Place value
	Factor
	Multiple
	Highest common factor
	Error interval
Indices	Calculation
Other	Money problem
	Units of measure
<b>Algebra</b>	
Equations	Number machine
Manipulation	Simplification
	Substitution
	Formula
Graphs	Roots
	Turning point
Sequences	Arithmetic
	Geometric
	$n$ th term
<b>Ratio</b>	
Conversions	Lengths
	Time
Ratio	Share into a ratio
Applications	Ratio problem
	Interpretation
	Ratio to graph
	Average speed
Percentage	Percentage to increase
Fraction	Fraction to percentage
<b>Geometry &amp; Measures</b>	
Shapes	Name
	Regular
	Line of symmetry
	Rotational symmetry
	Circle
	Sphere
	Trigonometry
Area and Volume	Compound shape
	Perimeter
Angles	Alternate angles
Other	Vector arithmetic
<b>Statistics</b>	
Two-way table	
Vertical line diagram	
Mean from diagram	
Bar chart	
<b>Probability</b>	
Frequency Tree	
Estimate of probability	