

Maths 2023

Exam dates:

Paper 1: Friday, 19th May 2023

Paper 2: Wednesday, 7th June 2023

Paper 3: Monday, 14th June 2023

Name: _____

Teacher: _____

Where I am currently

I am currently on Grade _____ and attained _____% on my Mock exam

My grade target is _____ and my percentage target is _____

My thoughts on how I can improve

What my teacher says on how I can improve

Key skills to learn for each tier

HIGHER TIER	FOUNDATION TIER
Part 1: Before Easter break Fractions Speed distance time Mass Volume Density Error intervals Percentages - normal price, change, interest LCM and HCF Ratio - recipes Standard form Fractional and negative indices Recurring decimals Direct and inverse proportion Surd Manipulation Solving equations and inequalities Expanding double and triple brackets Rearranging formulae Sequences - linear and quadratic Algebraic proof Simultaneous Equations esp. 1 quadratic Equation of a circle Equations of a line Algebraic fractions Completing the square - minimum point Scatter graphs Frequency polygons Probability - tree diagrams Cumulative frequency and boxplots - drawing and interpreting Histograms Transformations Circle theorems Transformation of curves $y = f(x)$ Congruence and similarity proof Similar shapes LSF, ASF, VSF Cones and Spheres (in terms of π)	Part 1: Before Easter break Ordering numbers (including negative) Ordering decimals/fractions/percentages Converting fractions, decimals and percentages Rounding to nearest/given d.p. or sig. Fractions of amounts Percentages- amounts, reverse, change Money problems Adding, subtracting, multiplying and dividing fractions/mixed numbers Finding a value in a number Adding, subtracting, multiplying and dividing decimals Factors, multiples, squares and cubes Prime Factors LCM and HCF Ratio problems - simplifying, sharing in a given Exchange rates Reading scales Telling the time; time problems Unit conversion Speed distance time Distance time graphs Proportion problems inc. ingredients Indices including negative Mass volume density Interest - compound Standard form Simplifying expressions - expanding brackets Factorisation Changing the subject of a formula Function machines Solving equations and inequalities Sequences - finding the nth term Plot and reading coordinates Equation of a line $y = mx + c$ Drawing graphs, straight line, quadratic, cubic, reciprocal etc. Simultaneous equations Substitution

HIGHER TIER	FOUNDATION TIER
<p>Part 2: During and after Easter break</p> <p>Bounds</p> <p>Compound interest</p> <p>Exchange rates</p> <p>Plotting and drawing graphs</p> <p>Regions</p> <p>Simultaneous equations</p> <p>Composite functions</p> <p>Velocity time graph</p> <p>Area under the curve - trapezium rule</p> <p>Venn diagrams e.g. A U B</p> <p>Averages from a frequency tables e.g. estimation of mean.</p> <p>Area of compound shapes</p> <p>Area of trapezium</p> <p>Circle and area of circles</p> <p>Arc length and sectors</p> <p>Angles in polygons</p> <p>Angles in parallel lines</p> <p>Pythagoras</p> <p>Construction/Loci Problems</p> <p>Bearings</p> <p>Trigonometry and Bearings</p> <p>Pythagoras and trigonometry in 3D</p> <p>Sine and Cosine rule</p>	<p>Part 2: During and after Easter break</p> <p>Error intervals</p> <p>Tally charts</p> <p>Pictograms</p> <p>Pie charts</p> <p>Relative frequency</p> <p>Scatter graphs</p> <p>Real life graphs - interpreting</p> <p>Venn diagrams e.g. A U B</p> <p>Frequency polygon</p> <p>Averages from a frequency table e.g. estimation of mean</p> <p>Combinations</p> <p>Probability - tree diagrams</p> <p>Stem and leaf diagrams inc. averages</p> <p>Drawing triangles - accurately</p> <p>Nets and elevation</p> <p>Area of circles. Semi circles</p> <p>Angles in parallel lines</p> <p>Angles in polygon</p> <p>3D shapes - name them and know its properties</p> <p>Construction/Loci problems</p> <p>Transformations</p> <p>Pythagoras</p> <p>Trigonometry</p>
<p>Typical problem-solving questions</p> <p>Shaded area - remember how to calculate area of shapes</p> <p>Simultaneous equations - word problem</p> <p>Area of compound shapes</p> <p>Calculate mean or when given the mean calculate the total</p> <p>Money problems involving area of a compound shapes</p> <p>Volume, mass and density</p> <p>Algebraic fractions - solving Fractional equations from word problems</p> <p>Equating two shapes to form an algebraic equation</p>	<p>Typical problem-solving questions</p> <p>What was my original number</p> <p>Calculate mean or when given the mean</p> <p>Area of shapes - compound shapes learn formula for a trapezium</p> <p>Area of a circle problems</p> <p>Volume, mass and density</p> <p>Money problems</p> <p>Money problems involving area of a compound shapes</p> <p>Simultaneous equation word problems</p> <p>Percentage, Fractions and ratio problems</p> <p>Sequences given a pattern - find the nth term</p>

Revise! Practise! Revise! Practise!

The best way to revise Maths is to do many questions, especially past examination questions. This is because you need to be prepared for every type of exam question and can learn a lot of newer things as well.

WHEN? Now. Maths revision is not something you leave until the end. You can and should do it as you go along. The key thing with Maths is to do it regularly. Obviously, you are going to do more revision as you approach the exams but start now and build it up. Create a revision timetable and stick to it.

WHERE? In a place where you will not be disturbed so you can concentrate. Come to all the revision sessions the Mathematics department provides and any intervention sessions you have been selected for.

WHAT? Use the key topic list in this booklet and focus on your weaker topics. However, make sure you practise topics which you find easier so that you can do them quickly and accurately in the exam. Do revise other topics as well; you can get some marks in some of the really hard topics even if you cannot finish the questions.

HOW? There are many good methods of revising: in pairs, groups and at revision classes. Use online resources to aid your learning especially Hegarty Maths. Do not forget to use all of the resources your teacher has posted on the Google Classroom. You will be given a formula sheet in your exams, these are shown on the next pages.

USEFUL LINKS

www.hegartymath.com

www.corbettmaths.com

www.geniemaths.co.uk

www.onmaths.com

www.mathsmadeeasy.co.uk

www.bbc.co.uk/schools/gcsebitesize/maths

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:

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

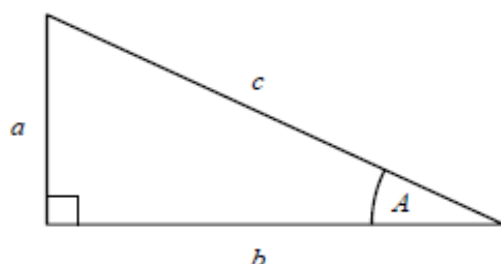
Volume of a prism = area of cross section \times length

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

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:

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

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

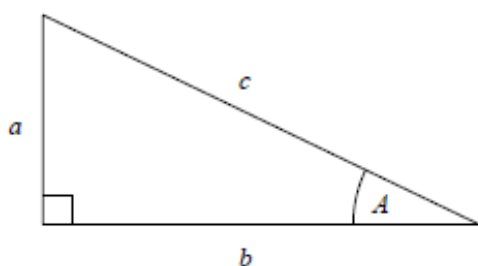
Quadratic formula

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

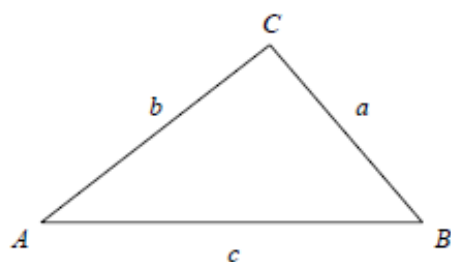


In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

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

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:

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

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

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

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