HASTINGS HIGH SCHOOL

AQA GCSE Maths - Higher

Course Overview 2018-2019

Provisional exam dates:

Paper 1 (90 minutes, non-calculator): Tuesday 21st May

Paper 2 (90 minutes, calculator): Thursday 6th June

Paper 3 (90 minutes, calculator): Tuesday 11th June

Topic	Including….	Mathswatch clips
Angles, scale and bearings	Angles in parallel lines, scale drawings, proof	120,124
Number, factors and multiples	Decimals, negatives, BIDMAS, HCF and LCM	66,67,68,75,78,79,80
Basic algebra	Collecting like terms, multiplying brackets, factorising	93,94
Fractions and decimals	Recurring decimals	71,72,73,74,177,189
Coordinates and linear graphs	Finding gradients of lines, equations of lines, midpoints, parallel and perpendicular lines	97,133,159,208
Rounding	Significant figures, upper and lower bounds, estimating	90,91,206
Collecting and representing data	Box and whisker diagrams, histograms, time series	153,187,205
Percentages	Increasing and decreasing, reverse percentages, compound and simple interest	86, 87, 88,89,108,109,110,111, 164
Polygons	Properties, angles	10,43,123
Perimeter and area	Perimeter and area of 2D shapes, surface area	52,53,54,55,56,114,169,170,171,172
Circumference and area	Circumference and area of circles and parts of circles	116,117,118,149,167
Real life graphs	Distance-time graphs	143
Ratio and proportion	Solving ratio and proportion problems	106,107
Pythagoras and trigonometry	Use in 2D and 3D problems	150,168,173,217,218
Equations	Rearranging, setting up and solving linear equations	135,137
Basic probability	Mutually exclusive events, sample space, frequency trees, relative frequency, expected probability	60,125,126,
Transformations	Reflection, rotation, translation, enlargement	48,49,50,148,181,182
Indices	Rules of indices, evaluating, simplifying	131,154,188

Surds	Simplifying, evaluating, arithmetic with surds, rationalising the denominator	207
Similarity	Length, area and volume, congruent triangles	144,166,200
Measures	SDT and MDV	142
Standard form	Converting between standard form and normal numbers, calculating	83
Sequences	Linear and quadratic, geometric, Fibonacci	102,103,104,141,163,213
Statistical measures	Averages and range, cumulative frequency, sampling	62,130,152,186
Scatter graphs	Plotting and interpreting, correlation	129
2D represents 3D	Using isometric paper, plans and elevations, nets	44,51
Construction and loci	Bisecting lines and angles, creating perpendicular bisectors, construction	145,146,147,165,
Probability	Conditional and independent probability, tree diagrams, Venn diagrams	151,175,185,204
Volume	Volume of prisms and other 3D shapes	115,119,169,170,171,172
Quadratics, rearranging and identities	Factorising, completing the square, the quadratic formula, quadratic graphs	98,157,158,160,191,192,
Numerical methods	Iteration	179,180
Equation of a circle	Identifying the centre of a circle and the radius from an equation	197
Further graphs and equations	Cubic, reciprocal and exponential graphs	161,194
Simultaneous equations	Linear and quadratic	140,162,211
Direct and inverse proportion	Creating equations and solving problems	199
Inequalities	Solving and representing on a number line	138,139,212
Growth and decay	Using formulas, graphs	194
Vectors	Using vectors, geometric reasoning, proof	174,219
Transforming functions	Rules of graph transformations	196
Sine and cosine rule	Finding angles and sides in triangles, area of a triangle	201,202,203
Circle theorems	Angles created in circles, proof	183,184
Gradients and rates of change	Velocity-time graphs, using tangents to estimate the gradient of a curve	216
Pre-calculus and area under a curve	Estimating and interpreting gradients, estimating the area under a curve	
Algebraic fractions	Simplifying, adding, subtracting, multiplying and dividing	210

Formulae that pupils should know

Area of a square/rectangle	Base x height
Area of a triangle	½(base x height)
Area of a parallelogram	Base x perpendicular height
Area of a trapezium	(a+b)/2 x h
Area of a circle	πr^2
Circumference of a circle	πd
Volume of a prism	Area of cross section x length
Speed, distance, time	Speed = distance ÷ time
Mass, density, volume	Density = mass ÷ volume
Frequency density	FD = frequency ÷ class width
Quadratic formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Sine rule	$\dfrac{a}{\sin(A)} = \dfrac{b}{\sin(B)} = \dfrac{c}{\sin(C)}$
Cosine rule	$a^2 = b^2 + c^2 - 2bc\cos(A)$
Area of a triangle	$\frac{1}{2}$ab sin(C)
Pythagoras	$a^2 + b^2 = c^2$
Trigonometry	$\sin(x) = \frac{o}{h}$ $\cos(x) = \frac{a}{h}$ $\tan(x) = \frac{o}{a}$

Formulae that pupils will get given on the exam papers

Curved surface area of a cone	πrL
Volume of a cone	$\frac{1}{3}\pi r^2 h$
Surface area of a sphere	$S = 4\pi r^2$
Volume of a sphere	$V = \dfrac{4}{3}\pi r^3$