

Year 9 Higher Plus Revision List - April 2019

<u>Objective</u>	<u>Hegarty Maths Clip</u>	<u>Objective</u>	<u>Hegarty Maths Clip</u>
Identify prime numbers	28	Use inequality notation to specify simple error intervals due to truncation or rounding	134
Write a number as the product of its prime factors	29	Calculate upper and lower bounds	137
Find the HCF and LCM of two numbers	32/35	Calculate speed, distance or time, given the other two	716-724
Calculate with roots and positive integer indices - including 'power to a power'	105/106/ 107	Calculate density, mass or volume, given the other two	725-731
Calculate with fractional indices	108	Know, understand and use the formula for finding the circumference of a circle.	534
Find the reciprocal of a number	71	Calculate the perimeter of a semi-circle.	536
Calculate with negative indices	104	Calculate the perimeter of a quadrant.	544
Write a surd in its simplest form	115	Calculate the length of an arc.	544
Multiply and divide with surds	113	Find the perimeter of a sector.	545
Expand brackets involving surds	116	Find the angle of a sector when given the length of the arc.	545
Solve shape problems involving surds	117	Show that a solution to an equation lies between two given points.	322
Change between numbers in standard form and ordinary numbers	112/123	Find approximate solutions to equations using a given iterative formula.	322
Multiply and divide numbers written in standard form	125/126	Understand and use function notation.	288
Understand and use the standard form display on a calculator	128	Find the value of a function at a given point.	288
Add and subtract numbers written in standard form	127	Find the inverse function	295
Recognise quadratic sequences, and use the term-to-term rule to generate further terms.	247	Given two functions find the value of the composite function.	293
Recognise simple geometric sequences, and use the term-to-term rule to generate further terms.	264	Given two functions find the composite function algebraically.	294
Identify whether a term will appear in a sequence, and explain your answer.	197	Solve functions	297
Find the nth term of a linear sequence.	198	Solve all multi-step linear equations, leaving answers as fractions where appropriate	180/181/ 182
Generate the terms of a quadratic sequence using the position-to-term rule.	248	Solve linear equations involving brackets, e.g. $3(2x - 4) = 6$.	179
Find the nth term of a quadratic sequence.	248	Solve linear equations where the unknown appears on both sides.	184
Differentiate between expressions, equations, formulae, identities and inequalities. Be able to give examples of each.	154	Derive a linear equation from a situation, solve and interpret the solution.	176
Form expressions from written or diagrammatic contexts.	153	Solve linear equations by adding or subtracting algebraic fractions, where the denominator is a number.	187
Multiply two (or more) brackets by single terms and simplify the resulting expression.	161	Find the roots of a quadratic equation of the form $ax^2 + bx + c$, where $a = 1$, by factorising, and link to the graph of the function.	230
Factorise an expression by taking out a common factor.	168	Find the roots of a quadratic equation using the quadratic formula.	241
Fully factorise an expression by taking out common factors.	169	Solve two linear simultaneous equations algebraically where no multiplication is needed.	190
Expand the product of two linear expressions of the form $x \pm n$ and simplify the resulting expression.	162	Solve two linear simultaneous equations algebraically where multiplication is needed.	191
Expand the product of two linear expressions of the form $ax \pm n$ and simplify the resulting expression.	163	Derive two linear simultaneous equations from a situation, solve and interpret the solution.	195
Factorise a quadratic expression of the form $x^2 + bx + c$.	170	Translate a 2d shape when given a column vector	637/638
Factorise a quadratic expression using the difference of two squares.	171	Describe the translation of a 2d shape using a column vector	637/638

Expand the product of three (or more) linear expressions and simplify the resulting expression.	166	Represent single column vectors graphically.	622
Simplify expressions involving the multiplication and division of indices.	173	Identify the column vector from a diagram (single vector)	623
Simplify expressions involving raising to a power with indices.	174	Multiply a column vector by a scalar and show this graphically.	626
Simplify expressions involving negative indices.	175	Add two vectors numerically and show this graphically.	625
Simplify expressions involving fractional indices.	175	Subtract two column vectors numerically and show this graphically.	625
Use proportion in real contexts (including inverse).	342	Find the resultant of two (or more) given vectors.	626
Recognise and interpret graphs that illustrate direct and inverse proportion	348	Calculate and use angle sums of polygons	560
Interpret equations that describe direct and inverse proportion.	343/346	Know and use the sum of the exterior angles in a polygon is 360°	563
Relate ratios to fractions	330	Know and use the sum of the interior and exterior angles is 180°	562
Express a relationship between two quantities as a ratio or a fraction	330	Find the number of sides of a regular polygon, given an interior or exterior angle	564
Apply ratio to real contexts and problems (conversion, comparison, scaling, mixing, concentrations)	739	Solve problems using all angle and parallel line rules, giving reasons	488/489
Using equivalent ratios, find an unknown value when another is given.	331	Recognise and label the properties of a circle, including: centre, radius, chord, diameter and circumference	592
Divide a quantity in a given ratio.	332	Recognise and label the properties of a circle, including: tangent arc, sector and segment	592
Solve complex ratio problems including those involving multiple ratios	338	Understand and use the fact that the angle at the centre is twice the angle at the circumference	594
Convert between units of measure in the same system	692	Understand and use the fact that the angle in a semi-circle is a right angle	595
Solve problems involving the addition and subtractions of units of measure.	714	Understand and use the fact that angles in the same segment are equal	596
Round to any number of significant figures	130	Understand and use the fact that the perpendicular from the centre of a circle to the chord bisects the chord	601
Estimate answers to calculations using approximation and rounding	131	Understand and use the fact that opposite angles in a cyclic quadrilateral sum to 180°	597
Understand that premature rounding can cause problems when undertaking calculations with more than one step	132	Use accurate drawings to solve bearing problems	495