

Year 10 Higher Plus Revision List - April 2019

<u>Objective</u>	<u>Hegarty Maths Clip</u>	<u>Objective</u>	<u>Hegarty Maths Clip</u>
Write a number as the product of its prime factors	29	Find the perimeter of a sector.	545
Find the HCF and LCM of two numbers	32/35	Find the angle of a sector when given the length of the arc.	545
Recognise powers of 2, 3, 4 and 5	102	Understand and use function notation.	288
Calculate with roots and positive integer indices - including 'power to a power'	105/106/ 107	Find the value of a function at a given point.	288
Calculate with fractional indices	108	Find the inverse function	295
Find the reciprocal of a number	71	Given two functions find the value of the composite function.	293
Calculate with negative indices	104	Given two functions find the composite function algebraically.	294
Write a surd in its simplest form	115	Solve functions	297
Multiply and divide with surds	113	Solve linear equations involving brackets, e.g. $3(2x - 4) = 6$.	179
Expand brackets involving surds	116	Solve linear equations where the unknown appears on both sides.	184
Solve shape problems involving surds	117	Derive a linear equation from a situation, solve and interpret the solution.	176
Rationalise the denominator of a fraction	118	Solve linear equations by adding or subtracting algebraic fractions, where the denominator is a number.	187
Change between numbers in standard form and ordinary numbers	112/123	Solve linear equations by adding or subtracting algebraic fractions, where the denominator is an expression.	187
Multiply and divide numbers written in standard form	125/126	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
Understand and use the standard form display on a calculator	128	Find the roots of a quadratic equation using the quadratic formula.	241
Add and subtract numbers written in standard form	127	Find the roots of a quadratic equation of the form $ax^2 + bx + c$, where $a \neq 1$, by factorising, and link to the graph of the function.	231
Recognise quadratic sequences, and use the term-to-term rule to generate further terms.	247	Find the roots of a quadratic equation by completing the square.	235
Generate the terms of a quadratic sequence using the position-to-term rule.	248	Derive a quadratic equation from a situation, solve and interpret the solution.	245
Find the nth term of a quadratic sequence.	248	Solve two linear simultaneous equations algebraically where multiplication is needed.	191
Recognise simple geometric sequences of the form r^n , where r may be a surd , and use the term-to-term rule to generate further terms.	264	Derive two linear simultaneous equations from a situation, solve and interpret the solution.	195
Differentiate between expressions, equations, formulae, identities and inequalities. Be able to give examples of each.	154	Solve two simultaneous equations, one linear, one quadratic, algebraically.	194
Form expressions from written or diagrammatic contexts.	153	Solve two simultaneous equations, one linear, one circular, algebraically.	194
Fully factorise an expression by taking out common factors.	169	Show that a solution to an equation lies between two given points.	322
Expand the product of two linear expressions of the form $x \pm n$ and simplify the resulting expression.	162	Find approximate solutions to equations using a given iterative formula.	322
Expand the product of two linear expressions of the form $ax \pm n$ and simplify the resulting expression.	163	Derive and use iterative formulae.	322
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
Factorise a quadratic expression of the form $ax^2 + bx + c$.	223	Identify the column vector from a diagram (single vector)	623

Use algebraic techniques to simplify algebraic fractions.	172	Multiply a column vector by a scalar and show this graphically.	626
Use algebraic techniques to add and subtract algebraic fractions.	172	Add two vectors numerically and show this graphically.	625
Use algebraic techniques to show that expressions are equivalent.	154	Subtract two column vectors numerically and show this graphically.	625
Use algebraic techniques to formulate proofs.	324	Find the resultant of two (or more) given vectors.	626
Simplify expressions involving raising to a power with indices.	174	Understand the relationship between parallel vectors.	629
Simplify expressions involving negative indices.	175	Find the vector to a midpoint, and use this to find resultant vectors.	630
Simplify expressions involving fractional indices.	175	Find the vector to a point given by a fraction or ratio, and use this to find resultant vectors.	629
Use proportion in real contexts (including inverse).	342	Calculate and use angle sums of polygons	560
Recognise and interpret graphs that illustrate direct and inverse proportion	348	Know and use the sum of the exterior angles in a polygon is 360°	563
Interpret equations that describe direct and inverse proportion.	343/346	Know and use the sum of the interior and exterior angles is 180°	562
Construct and interpret equations that describe direct and inverse proportion.	344/347	Find the number of sides of a regular polygon, given an interior or exterior angle	564
Solve complex ratio problems including those involving multiple ratios	338	Solve problems using all angle and parallel line rules, giving reasons	488/489
Convert between units of measure in the same system	692	Understand and use the fact that the angle at the centre is twice the angle at the circumference	594
Solve problems involving the addition and subtractions of units of measure.	714	Understand and use the fact that the angle in a semi-circle is a right angle	595
Estimate answers to calculations using approximation and rounding	131	Understand and use the fact that angles in the same segment are equal	596
Understand that premature rounding can cause problems when undertaking calculations with more than one step	132	Understand and use the fact that the perpendicular from the centre of a circle to the chord bisects the chord	601
Use inequality notation to specify simple error intervals due to truncation or rounding	134	Understand and use the fact that opposite angles in a cyclic quadrilateral sum to 180°	597
Calculate upper and lower bounds	137	Understand and use the fact that the tangent at any point on a circle is perpendicular to the radius at that point	599
Find the upper and lower bounds of calculations involving measurements	139	Understand and use the fact that tangents from an external point are equal in length	600
Round a calculation to a suitable degree of accuracy using upper and lower bounds of calculations	139	Understand and use the alternate segment theorem	598
Calculate speed, distance or time, given the other two	716-724	Give reasons for angle calculations involving circle theorems, using appropriate language	594-600
Calculate density, mass or volume, given the other two	725-731	Prove the circle theorems concerning angles, radii, tangents and chords, and use them to prove related results	816-820
Calculate pressure, force or area, given the other two	734-737	Use accurate drawings to solve bearing problems	495
Calculate the length of an arc.	544		