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|  | **Half term points** |
| **10H** |
| **AUTUMN 1** | **AUTUMN 2** | **SPRING 1** | **SPRING 2** | **SUMMER 1** | **SUMMER 2** |
|  N2.7 Calculating with standard form N7.6 Rules of indicesA3.6 Quadratic equationsA5.1 Factorising quadratics A5.2 Solve equations by factorisingGM5.10 Finding centres of rotation**Hot assessment per topic – 10 questions**  | SP2.7 Using lines of best fitGM6.7 Constructing plans and elevationsN5.7 Repeated percentage increase/decreaseA2.6 Geometric progressions GM2.9 Congruent triangles and proofGM2.10 Proof using similar and congruent triangles GM5.9 Trigonometry for special anglesGM6.6 Enlargement in two and three dimensions**Hot assessment per topic – 10 questions**  | A3.5 Finding equations of straight linesGM1.11 Working with compound unitsGM6.8 Surface area and volume of 3-D shapesA3.7 Polynomial and reciprocal functionsA1.11 Identities GM3.6 Arcs and sectors**Hot assessment per topic – 10 questions**  | SP4.5 The multiplication ruleSP4.6 The addition rule GM7.1 Vectors N7.7 Fractional indices A1.12 Using indices in Algebra N5.8 Growth and decay A3.10 Exponential functions**Hot assessment per topic – 10 questions**  | N7.8 SurdsGM5.12 Enlargement with negative scale factorsA2.7 Other sequences A2.8 Nth term of quadratic sequences**Hot assessment per topic – 10 questions**  | N2.8 Recurring decimals N3.8 Upper and lower bounds GM2.11 Circle theoremsA3.8 Perpendicular linesA4.6 Solving linear inequalities in two variables**Hot assessment per topic – 10 questions**  |
| **Key skills and knowledge assessed:** **Key Skill:*** Calculate in standard form – with and without a calculator. Convert numbers into standard form and vice versa
* Calculate with roots and integer indices
* Draw quadratic graphs and graphs of real-life situations
* Solve quadratic equations by factorising
* Factorise/ simplify harder expressions and solve more difficult equations

**Key knowledge:** * Know how to interpret a calculator display when working with standard form
* know that a0 = 1
* Know the characteristic shape of a quadratic graph
* Know the formula for solving quadratic equations
* Know how to solve equations by factorising
 | **Key skills and knowledge assessed:****Key Skills:*** Use a line of best fit to extrapolate or interpolate data from a scatter graph
* Plot and use scatter graphs
* Work out a percentage inc/ dec and repeated change using a multiplier
* Special sequences, Fibonacci etc.
* Solve problems involving congruent or similar shape
* Use trigonometry to find a length and an angle on a right-angled triangle

**Key knowledge:*** Know how to create , use and draw the line of best fit
* Know how to work out a percentage inc/dec and repeated change using a multiplier
* Know how to use the rules for special sequences, Fibonacci etc
* Know the conditions for congruent triangles and congruence notation
* Know how to solve problems involving congruent or similar shape
* Know how to apply SOCAHTOA on a right-angled triangle
 | **Key skills and knowledge assessed:****Key Skills:*** Use y=mx+c to identify parallel and perpendicular lines
* Change freely between compound measures
* Work out the surface area/ volume of cuboids in context
* Work out the surface area/ volume of cylinders, pyramids, spheres
* Draw/interpret linear, quadratic, simple cubic, exponential and 1/x graphs
* The difference between an identity and equation
* Solve problems using arc lengths and areas of sectors

**Key knowledge:*** Know how to set up the axis for graphs and real life graphs, and how to present given data
* Know the definition of speed
* Know the definition of density
* Know how to find the surface area of shapes
* Know the formula for the volume of a cuboid
* Know the formulae for the volume of a sphere, a cone and a pyramid
* Know the characteristic shape of the graph of a reciprocal function
* Know the difference between an equation and an identity
* Know the definitions of arc, sector, tangent and segment
 | **Key skills and knowledge assessed:****Key Skills:*** Use the product rule to calculate the number of ways of listing events.
* Use the ‘and’ rule when finding the probability of probability trees
* Understand vector notation and add, subtract and multiply vectors by a scalar
* Manipulate fractional indices
* Solve growth and decay problems using multipliers or iterative processes. Understand that some iterations may have a limiting value.
* Estimate and interpret areas under curves and gradients of a tangent to a curve.

**Key knowledge:*** Know how apply the product rule
* Know how to apply the ‘and rule’
* Know how to use scalars in vectors
* Know how to manipulate fractional indices
* Know the characteristic shape of the graph of an exponential function
 | **Key skills and knowledge assessed:****Key Skills:*** Simplify surds, including rationalising the denominator of a surd expression
* Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement) Know which properties are preserved
* Special sequences, Fibonacci etc.
* Find the nth term of a quadratic sequence

**Key knowledge:** * Know the surd rules
* Know how to Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement). Know which properties are preserved
* Know how to use the rules for special sequences, Fibonacci etc.
* Know how to find the nth term of a quadratic sequences
 | **Key skills and knowledge assessed:****Key Skills:*** Convert FDP readily including recurring decimal forms
* Give error intervals for a given amount with a given accuracy
* Use error intervals within problem-solving
* Use circle theorems with one reason
* Construct a chain of reasoning using circle theorems
* Consider perpendicular and parallel lines, gradients product
* Plot lines and inequalities on a Cartesian grid.

**Key knowledge:** * Know the process x, 10x 100x etc for conversion of recurring decimal
* Know FDP conversion methods
* Know error interval standard technique
* Know combinations of max and min and resultant max mins.
* Know all circle theorems
* Know product of gradients is -1 for perpendicular lines (or negative reciprocal)
* Know to apply point testing when lines have been constructed to determine region
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| **Meaningful homeworks:****Paper-based task from year 8 Summer 2**Currency conversion,Problem solving shapeCo-ordinatesArea and perimeterFractions decimals and percentagesVolume and surface area | **Meaningful homeworks:****Paper-based task on current and previous topics**Direct and inverse proportion graphs,Trigonometry  | **Meaningful homeworks:****Paper based task on current and previous topics**Standard formIndices, integer and fractionalQuadratic graphs usingQuadratic equations | **Meaningful homeworks:****Paper based task on current and previous topics**TrigonometryScatter GraphsPercentagesSequences | **Meaningful homeworks:****Paper based task on current and previous topics**Combinations (simple)AND/OR Probability rulesVector arithmeticExponentials (curve/model and indices) | **Meaningful homeworks:****Paper based task on current and previous topics**SurdsTransformationsSequences, quadratic and special types.  |
| **Key skills and knowledge assessed:** **Key Skills:*** Calculated the volume of shapes
* Work out the surface area/ volume of cuboids in context
* Work out the surface area/ volume of cylinders, pyramids, spheres, hemispheres, cones and prisms
* Simplify fractions
* Identify Equivalent fractions
* Convert between mixed numbers and improper fractions, fractions, decimals, and percentages

**Key knowledge:** * know that the volume of a prism = area of cross section x length
* know that volume of a prism = area of face x depth
* Know how to find the surface area of shapes
* Know how to cancel fractions
* Know how to convert between mixed numbers and improper fractions
* Know how to convert between fractions – decimals – percentages
 | **Key skills and knowledge assessed:****Key Skills*** Recognise direct and inverse proportion graphs
* Use formulae expressed in words/ letters
* Use trigonometry to find a length and an angle on a right-angled triangle

**Key knowledge:** * Know the difference between direct and inverse proportion
* Know how to identify formulae from given text
* Know how to apply SOCAHTOA on a right-angled triangle
 | **Key skills and knowledge assessed:****Key Skill:*** Calculate in standard form – with and without a calculator. Convert numbers into standard form and vice versa
* Calculate with roots and integer indices
* Draw quadratic graphs and graphs of real-life situations
* Solve quadratic equations by factorising
* Factorise/ simplify harder expressions and solve more difficult equations

**Key knowledge:** * Know how to interpret a calculator display when working with standard form
* know that a0 = 1
* Know the characteristic shape of a quadratic graph
* Know the formula for solving quadratic equations
* Know how to solve equations by factorising
 | **Key skills and knowledge assessed:****Key Skills:*** Use a line of best fit to extrapolate or interpolate data from a scatter graph
* Plot and use scatter graphs
* Work out a percentage inc/ dec and repeated change using a multiplier
* Special sequences, Fibonacci etc
* Solve problems involving congruent or similar shape
* Use trigonometry to find a length and an angle on a right-angled triangle

**Key knowledge:*** Know how to create , use and draw the line of best fit
* Know how to work out a percentage inc/dec and repeated change using a multiplier
* Know how to use the rules for special sequences, Fibonacci etc.
* Know the conditions for congruent triangles and congruence notation
* Know how to solve problems involving congruent or similar shape
* Know how to apply SOCAHTOA on a right-angled triangle
 | **Key skills and knowledge assessed:****Key Skills:*** Use the product rule to calculate the number of ways of listing events.
* Use the ‘and’ rule when finding the probability of probability trees
* Understand vector notation and add, subtract and multiply vectors by a scalar.
* Manipulate fractional indices
* Solve growth and decay problems using multipliers or iterative processes. Understand that some iterations may have a limiting value.

**Key knowledge:*** Know how apply the product rule
* Know how to apply the ‘and rule’
* Know how to use scalars in vectors
* Know how to manipulate fractional indices
* Know the characteristic shape of the graph of an exponential function
 | **Key skills and knowledge assessed:****Key Skills:*** Simplify surds, including rationalising the denominator of a surd expression
* Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement). Know which properties are preserved
* Special sequences, Fibonacci etc.
* Find the nth term of a quadratic sequence

**Key knowledge:** * Know the surd rules
* Know how to Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement). Know which properties are preserved
* Know how to use the rules for special sequences, Fibonacci etc.
* Know how to find the nth term of a quadratic sequences
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| **Meaningful homeworks:****Mathswatch**Topics from Year 8, Summer 2 | **Meaningful homeworks:****Mathswatch**Topics from Autumn 1 | **Meaningful homeworks:****Mathswatch**Topics from Autumn 2 | **Meaningful homeworks:****Mathswatch**Topics from Spring 1 | **Meaningful homeworks:****Mathswatch**Topics from Spring 2 | **Meaningful homeworks:****Mathswatch**Topics from Summer 1 |