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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 indices  A3.6 Quadratic equations  A5.1 Factorising quadratics  A5.2 Solve equations by factorising  GM5.10 Finding centres of rotation  **Hot assessment per topic – 10 questions** | SP2.7 Using lines of best fit  GM6.7 Constructing plans and elevations  N5.7 Repeated percentage increase/decrease  A2.6 Geometric progressions  GM2.9 Congruent triangles and proof  GM2.10 Proof using similar and congruent triangles  GM5.9 Trigonometry for special angles  GM6.6 Enlargement in two and three dimensions  **Hot assessment per topic – 10 questions** | A3.5 Finding equations of straight lines  GM1.11 Working with compound units  GM6.8 Surface area and volume of 3-D shapes  A3.7 Polynomial and reciprocal functions  A1.11 Identities  GM3.6 Arcs and sectors  **Hot assessment per topic – 10 questions** | SP4.5 The multiplication rule  SP4.6 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 Surds  GM5.12 Enlargement with negative scale factors  A2.7 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 theorems  A3.8 Perpendicular lines  A4.6 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 |
| **Meaningful homeworks:**  **Paper-based task from year 8 Summer 2**  Currency conversion,  Problem solving shape  Co-ordinates  Area and perimeter  Fractions decimals and percentages  Volume 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 form  Indices, integer and fractional  Quadratic graphs using  Quadratic equations | **Meaningful homeworks:**  **Paper based task on current and previous topics**  Trigonometry  Scatter Graphs  Percentages  Sequences | **Meaningful homeworks:**  **Paper based task on current and previous topics**  Combinations (simple)  AND/OR Probability rules  Vector arithmetic  Exponentials (curve/model and indices) | **Meaningful homeworks:**  **Paper based task on current and previous topics**  Surds  Transformations  Sequences, 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 |
| **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 |