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|  | **Half term points** |
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| **AUTUMN 1** | **AUTUMN 2** | **SPRING 1** | **SPRING 2** | **SUMMER 1** | **SUMMER 2** |
| N2.6 Writing numbers in standard formN3.6 ApproximatingA3.4 Plotting quadratic and cubic graphsGM1.10 Compound unitsGM6.6 Enlargement in two and three dimensions**Hot assessments per topic – 10 questions** | N5.5 Finding the percentage change from one amount to anotherGM2.8 Angles in a polygonGM6.5 PrismsSP2.6 Scatter diagramsSP2.7 Using lines of best fitGM6.7 Constructing plans and elevations**Hot assessments per topic – 10 questions** | A3.5 Finding equations of straight linesA3.5 Quadratic sequencesGM1.11 Working with compound unitsA1.9 Simplifying harder expressionsGM6.8 Surface area and volume of 3-D shapes**Hot assessments per topic – 10 questions** | SP4.4 Estimating probabilitySP4.5 The multiplication ruleGM5.10 Finding centres of rotationN2.7 Calculating with standard formA1.10 Using complex formulaeA3.7 Polynomial and reciprocal functions**Hot assessments per topic – 10 questions** | N7.5 Prime Factorisation GM5.7 SimilarityA2.5 Quadratic sequencesA2.6 Geometric progressions**Hot assessments per topic – 10 questions** | N7.6 Rules of indicesGM2.9 Congruent triangles and proofA4.3 Solve pairs of equations by substitutionA4.4 Solve simultaneous equations by elimination**Hot assessments per topic – 10 questions** |
| **Key skills and knowledge assessed:** **Key Skills:*** Convert to and from standard form
* Check answers using approximate/estimations and evaluate results
* Draw linear, quadratic, simple cubic functions
* Simple compound measure problems
* Change freely between compound measures
* Plot enlargements

**Key Knowledge:*** Know how to enlarge shapes
* Know the multiplier for linear scale factor is squared for area or cubed for volume
 | **Key skills and knowledge assessed:****Key Skills:*** Write a quantity as a fraction or percentage of another
* Any percentage of a given amount calculator and non-calculator including simple interest
* Calculate the size of exterior/interior angles in a regular polygon and solve problems using angles in polygons.
* Work out the surface area/ volume of prisms
* Use a line of best fit to extrapolate or interpolate data from a scatter graph
* Plot and use scatter graphs identify positive or negative correlation

**Key Knowledge:*** Know how to solve repeated percentage change problems using multipliers
* Know how to work out a percentage inc/dec and repeated change using a multiplier
* Know how to calculate angles in polygons and exterior angles
* know that volume of a prism= area of face x depth and to find area of all faces for SA
* Know how to represent 3-D shapes with 2D drawings
 | **Key skills and knowledge assessed:****Key Skills:*** Use y=mx+c to identify parallel and perpendicular lines
* Find gradient of a given line
* Find the nth term of a quadratic sequence
* Change freely between compound measures
* Simplify and manipulate expressions by collecting like terms
* Calculate surface areas and volume of cubes and cuboids

**Key Knowledge:*** Know a method of finding the gradient of a line
* Know a method to find the nth term of quadratic sequence
 | **Key skills and knowledge assessed:****Key Skills:*** Plot rotations
* Calculate in standard form – with and without a calculator.
* Convert to and from standard form
* Rearrange formulae for a given subject
* Draw linear, quadratic, simple cubic, exponential and 1/x graphs identifying key points

**Key Knowledge:*** Know that more trials of an experiment tend to allow the experimental probability (relative frequency) to tend toward the theoretical probability
* Know the difference between dependent and independent events in probability
* Know to multiply along branches in a probability tree
* Know a method to find the order of rotation
* Know the characteristic functions of linear, quadratic, reciprocal, cubic and exponential graphs
 | **Key skills and knowledge assessed:****Key Skills:*** Write numbers as the product of their prime factors
* Solve problems using factors, multiples primes
* Solve problems involving congruent or similar shape
* Recognise and continue quadratic sequences
* Find the nth term of a quadratic sequence
* Obtain a term-to-term rule for a geometric progression

**Key Knowledge:*** Know how to solve problems involving congruent or similar shape
* Know that a quadratic sequence has a constant 2nd difference
 | **Key skills and knowledge assessed:****Key Skills:*** Calculate with roots and integer indices
* Solve problems involving congruent or similar shape
* Fully understand SAS, RHS, SAS, SSS constructions give congruent triangles, identifying and stating
* Solve two linear simultaneous equations algebraically and graphically

**Key Knowledge*** Know how to solve problems involving congruent or similar shape
* Know how to use either elimination or substitution to solve linear simultaneous equations
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| **Meaningful homeworks:****Paper-based task on current and previous topics**Volume of cuboidsSolving inequalitiesInequalities on number linesAngles in parallel linesConstruction with a ruler and protractorPerimeterAdding fractionsDividing fractionsExpanding and simplifyingVenn Diagrams & ProbabilityDescribing transformationsRatio problems | **Meaningful homeworks:****Paper-based task on current and previous topics**Ratio simplest formEquivalent ratiosSharing a ratioSolving equationsSolving inequalitiesInequalities on number linesExpanding bracketsSimplifying expressions | **Meaningful homeworks:** **Paper-based task on current and previous topics**Speed, distance, timeWriting a number in standard formCalculations in standard formEnlargementsDensity, mass, volumeSignificant figuresPlotting quadratics | **Meaningful homeworks:****Paper-based task on current and previous topics**Volume of a pyramidRounding to given decimal placesVolume of a prismArea of cross sectionPercentage increasePercentage profitCompound interestInterior angles of polygonsExterior angles of polygonsScatter graphsLine of best fit | **Meaningful homeworks:****Paper-based task on current and previous topics**Simplifying expressionsLaws of indicesSurface area of cuboidsVolume of cuboidsExpanding and simplifying single bracketsCalculating in standard formOrdering standard form Equations of parallel and perpendcular linesProbability of a single eventEstimating probabilityPlotting reciprocal functionsCombinationsConverting compoud unitsDensityRearranging equations | **Meaningful homeworks:****Paper-based task on current and previous topics**Lowest common multiplesProduct of primesSimplifying index Form 4 operations in standard formOrdindary number to standard formFinding the nth term rule of a quadratic sequenceFibanacci sequencesProbability in a tableRearranging a formula to a given subjectProbability treesForming equationsSimilar triangles |
| **Key skills and knowledge assessed:** **Key Skills:*** Work out the surface area/ volume of cuboids in context
* Solve linear inequalities and represent them on a number line
* Use correct inequality notation on number lines and to show intervals
* Construct shapes using a protractor and ruler (ASA and SAS triangles)
* Calculate the perimeter of shapes
* Draw and Use tree diagrams and Venn diagrams for calculating probabilities
* Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement).

**Key Knowledge:*** Know the formula for the volume of a cuboid
* Know that linear inequalities are similar to linear equations
* Know how to identify parallel lines
* Know how to use a ruler AND protractor in shape construction
* Know how + - / \* fractions inc improper
* Know how to expand and simplify
 | **Key skills and knowledge assessed:****Key Skills:*** Find the ratio of an amount, 2 or 3 parts
* Ratio given part find total or other amount or ratio problem solving
* Solve linear equations in one unknown, unknown on both sides
* Solve linear inequalities and then represent them on a number line
* Expand the product of two binomials

**Key Knowledge:*** Know how to simplify ratio
* Know the process to share when given a ratio
* Know the process to balance equations to find a solution
* Know how to expand and simplify
 | **Key skills and knowledge assessed:** **Key Skills:*** Convert to and from standard form
* Calculate in standard form – with and without a calculator
* Identify, draw and describe transformations (inc. fractional/ negative scale factors for enlargement)
* Draw quadratics
* Find roots and intercepts of quadratic graphs from plot

**Key Knowledge:*** Know the definition of speed
* Know how to enlarge shapes
* Know the definition of density
* Know how to round to decimal places and to significant figures
* Know the characteristic functions of linear, quadratic, cubic
 | **Key skills and knowledge assessed:** **Key Skills:*** Calculate volumes of spheres, cones, and pyramids
* Work out the surface area/ volume of cylinders, pyramids, spheres, hemispheres, cones, and prisms
* Calculate the area of simple shapes rectangle, triangle, etc
* Work out a percentage inc/ dec and repeated change using the multiplier
* Solve complex repeated and inverse percentage problems.
* Calculate the size of exterior/interior angles in a regular polygon and solve problems using angles in polygons.
* Use a line of best fit to extrapolate or interpolate data from a scatter graph
* Plot and use scatter graphs identify positive or negative correlation

**Key Knowledge:*** Know how to round to decimal places
* know that volume of a prism= area of face x depth
* Know how to calculate reverse percentages
* Know how to work out a percentage inc/dec and repeated change using a multiplier

  | **Key skills and knowledge assessed:** **Key Skills:*** Calculate with integer indices
* Calculate surface areas and volume of cubes and cuboids
* Work out the surface area/ volume of cuboids in context
* To expand single brackets
* Calculate in standard form – with and without a calculator
* Convert to and from standard form
* Change freely between compound measures

**Key Knowledge:*** Know how to simplify harder expressions
* Know how to find the surface area of shapes
* Know to how expand single brackets
* Know how to expand and simplify
* Know that more trials of an experiment tend to allow the experimental probability (relative frequency) to tend toward the theoretical probability
* Know the difference between dependent and independent events in probability
* Know to multiply along branches in a probability tree
* Know the characteristic shape of the graph of a quadratic, cubic and reciprocal graph
 | **Key skills and knowledge assessed:** **Key Skills:*** Write numbers as the product of their prime factors and solve problems for HCF /LCM
* Calculate in standard form – with and without a calculator
* Find the nth term of a quadratic sequence
* Solve problems involving congruent or similar shape

**Key Knowledge:*** Know that a quadratic sequence has a constant 2nd difference
* Know how to use the rules for special sequences, Fibonacci etc
* Know to multiply along branches in a probability tree
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| **Meaningful homeworks:****Mathswatch**Topics from Year9 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 |