



**AQA 8300**  
(All 1 hr 30mins)  
**PAPER 1 (33%): Non-Calc**  
**PAPER 2 (33%): Calculator**  
**PAPER 3 (33%): Calculator**

**YEAR 11**

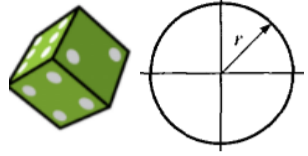
Integrate Knowledge Into Larger Concepts

$g^{-1}(x) = ?$   
 $g(x) = \sqrt{2x-3}$

- Functions:**
- Use function machines recap
  - Substitution into expressions & formulae recap
  - Use function notation
  - Work with composite & inverse functions

$x^2 + y^2 = r^2$

- Equation of a circle:**
- Understand & use exponential graphs
  - Find & use the equation of a circle, centre (0, 0)
  - Find the equation of a tangent to any curve

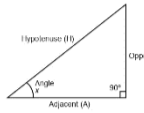


- Algebraic proof:**
- Formal algebraic proof

- Indices & Roots:**
- Calculate higher powers & roots
  - Power zero & negative indices
  - Work with powers of powers
  - Understand & use fractional indices

$27^{\frac{2}{3}} = (\sqrt[3]{27})^2 = 9$

- Trigonometry:**
- Finding missing sides and angles
  - Finding sides using Pythagoras'
  - Use Sine & Cosine
  - Area of triangle using Sine rule



- Non-calc methods:**
- Estimation & Exact answers
  - Rational & irrational numbers
  - Rounding
  - Surds
  - Upper & lower bounds

$x^2 + 4x - 5 > 0$

- Simultaneous equations:**
- Solve two linear using elimination method
  - Solve including a quadratic equation
  - Solve using graphs

$\begin{matrix} 6y + 2x = 26 \\ 6y + 2x = 9 \end{matrix}$

- Further algebra:**
- Complete square
  - Solve using quadratic formula
  - Change the subject



- Vectors:**
- Multiplied by scalars
  - Add & subtract vectors
  - Proof & geometric arguments

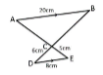
- Probability:**
- Venn diagrams
  - Tree diagrams
  - Sample space
  - Experimental
  - Estimates
  - Sum to 1

- Probability:**
- Event probability recap
  - Relative frequency
  - Expected outcomes
  - Independent events
  - Tree diagrams

**YEAR 10**

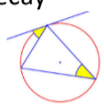
- Measures of location:**
- Mean, median & mode
  - Find mean from tables
  - Compare distributions

- Congruency & Similarity:**
- Similar shapes
  - Areas of similar shapes
  - Identify congruent figures
  - Enlargement



- Using graphs:**
- Construct & interpret dist-time, speed-time and other real-life graphs
  - Direct & inverse proportion graphs
  - Approximate solutions to graphs
  - Estimate area under a curve

- Percentage & Interest:**
- Percentage recap
  - Growth & decay
  - Iteration

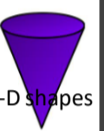


- Working with circles:**
- Area of sectors/lengths of arcs
  - Circle theorems
  - Volume & SA of spheres, cylinders & cones
  - Solve area & volume problems with similar shapes

- Angles & Bearings:**
- Measure, read and construct bearings
  - Calculate using angle rules, trig & pythag.



- 3-D shapes:**
- Name 2-D and 3-D shapes
  - Nets of 3-D shapes
  - Plans & elevations
  - Surface area & volume of 3-D shapes



- Represent solutions of equation & inequalities:**
- Solve equations & inequalities
  - Show solutions to inequalities on a number line



- Solving ratio & proportion problems:**
- Direct proportion, ratio & conversion graphs recap
  - Inverse problems, graphs & best buy

- Rates:**
- Solve SDT and DMV problems
  - Use distance-time graphs
  - Rates of change and units
  - Convert compound units

- Pythagoras and Trigonometry:**
- Know hypotenuse
  - Calculate missing sides of a right-angled triangle
  - Use Pythagoras on Cartesian plane
  - Explore proofs of Pythagoras

- Construction:**
- Draw and measure angles. Scale drawings (recap)
  - Loci & constructions, incl. triangles SSS, ASA, SAS

- The Data Handling Cycle:**
- Set up enquires, questionnaires
  - Pictograms, bar charts and line graphs
  - Multiple bar charts and pie charts
  - Averages
  - Range
  - Comparing distributions
  - Misleading graphs

- Line symmetry & reflection:**
- Reflecting shapes in horizontal and vertical lines
  - Reflect shapes in diagonal lines



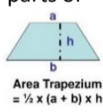
- Maths & Money:**
- Bills & bank statements
  - Simple and compound interest
  - VAT, wages & tax
  - Exchange rates
  - Unit pricing problems

- Forming & solving equations:**
- One-step, two-step and inequalities, brackets recap
  - Factorise quadratics incl. solving
  - Rearranging formulae



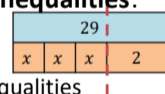
- Angles in parallel lines & polygons:**
- Angle rules and notation
  - Angles in parallel lines
  - Triangles & quadrilaterals
  - Interior & exterior angles in polygons

- Area of Trapezia & circles:**
- Incl. perimeter
  - Area & perimeter of compound shapes
  - Area of parts of circles

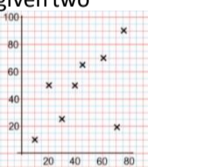
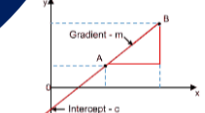


- Indices:**
- Add & subtract indices.
  - Simplify indices
  - Use addition & subtraction laws

- Brackets, equations & inequalities:**
- Algebraic expressions, expanding brackets
  - Solving equations & inequalities



- Representing data:**
- Scatter graphs
  - Lines of best fit
  - Ungrouped & grouped (discrete/cont.) frequency tables
  - Construct and interpret two-way tables



- Standard Form:**
- Convert into standard form
  - Calculations with SF

$4.5 \times 10^{-3}$

- Fractions & percentages:**
- Convert between FDP
  - Calculate amounts by FDP
  - Calc % inc/dec using multipliers
  - Find a % change
  - Reverse percentages



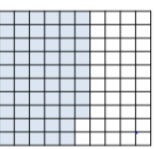
- Sequences:**
- Generate sequences.
  - Finding the nth term

- Probability:**
- Construct sample spaces
  - Find probabilities from: Sample space, two-way table & Venn
  - Use product rule for counting

- Cartesian plane:**
- In all four quadrants
  - Straight-line graphs
  - Gradients
  - Midpoints

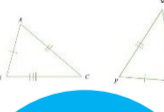
- Multiply & divide:**
- Fractions:  $\times, \div$  fractions incl. integers
  - Incl. improper & mixed numbers
  - Incl. algebraic fractions
  - Reciprocals

- Primes and proof:**
- Multiples incl. LCM
  - Factors incl. HCF
  - Product of primes
  - Square and triangular numbers



- Sets and Probability:**
- Venn diagrams & set notation
  - Sample spaces
  - Probability scale
  - Calculate probability

- Constructing & measuring:**
- Use geometric notation
  - Draw & measure angles
  - Triangles & quadrilaterals
  - SSS, ASA, SAS
  - Angle rules

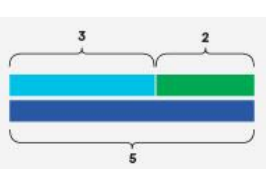
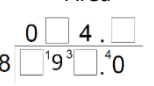


- Multiplicative change:**
- Direct proportion
  - Conversion graphs
  - Converting currencies
  - Scale factors & diagrams

- Fractions:**
- Simplify fraction
  - Equivalent fractions
  - Mixed numbers & improper fractions
  - Add & subtract fractions

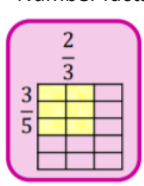
- Fraction & % of amounts:**
- Fraction & % of an amount
  - Use a fraction to find the whole and/or other fractions

- Multiplication & Division:**
- Incl. powers of ten & decimals
  - Mental & written methods
  - Order of Operations
  - Converting units
  - Area



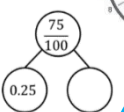
- Directed Number:**
- $+, -, \times, \div$
  - Order & compare
  - Order of Operations
  - Rounding to 1 sig. fig.

- Number sense:**
- Use mental strategies  $+, -, \times, \div$
  - Incl. fractions and decimals
  - Estimation
  - Number facts



- Equality & Equivalence:**
- Notation
  - Substitution
  - Like and unlike terms
  - Solve linear equations
  - Incl. decimals, fractions & negatives

- Fractions, decimals & % equivalence:**
- Understand fractions including using diagrams
  - Convert from fraction, decimal and per cent
  - Use & interpret pie charts
  - Identify & use simple equivalent fractions
  - Understand fractions as division

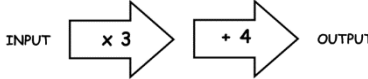


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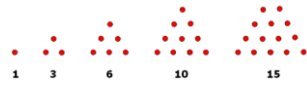
**YEAR 7**

- Addition and Subtraction:**
- Integers and decimals
  - Use concrete, pictorial & written methods.
  - Perimeter
  - Time tables
  - Frequency trees

- Algebraic notation:**
- Function machines
  - Use inverse
  - Substitution
  - Generate sequences
  - Represent functions graphically



- Sequences:**
- Describe & continue sequences
  - Predict next term(s)
  - Sequences in a table & graphically
  - Term-to-term rule
  - Find missing terms



- Place Value:**
- Integers & decimals
  - Ordering incl. negatives & decimals
  - Rounding
  - Range & median

