MTS Year 10 Maths Learning Journey 2023 - 24

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Simultaneous Equations

- Collect like terms
- Solve simultaneous equations algebraically
- Solve simultaneous equations graphically
- Form and solve simultaneous equations
- **Solve quadratic simultaneous equations**

Collecting, Representing and Interpreting Data

- Sampling
- Frequency polygon
- Two way table
- Bar chart
- Pie chart
- **Histogram**
- Averages and range from a list
- Averages from a table
- Time series
- Stem and leaf
- **Box Plot**
- **Cumulative frequency**
- Scatter diagrams
- Compare distributions
- Criticise graphs

Vectors

- Representing vectors on a diagram
- Vector notation
- Column vectors
- Addition and subtraction
- Scalar multiplication
- **Vector journeys**
- **Vector proof**

Probability

- Find probability
- Probability tables
- Venn diagrams
- Frequency trees
- Outcomes
- Sample spaces
- Tree diagrams
- **Conditional probability**
- **Algebraic probability**

Equations and Inequalities

- Substitution
- Solve equations and inequalities
- Form and solve
- Represent inequalities **and regions**
- Straight line graphs
- **Solve quadratic equations**

Circles

- Name parts
- Area
- Circumference
- Arcs and sectors
- **Circle theorems**
- Surface area and Volume of sphere, cone and cylinder

Indices and Roots

- Square and cube numbers
- Use a calculator
- **Estimate powers and roots**
- Standard form
- Simplify indices
- Negative indices
- **Fractional indices**

Ratio and Fractions

- Equivalent fractions
- Share in a ratio
- Direct proportion
- Exchange rates
- Best buy
- **Area and Volume ratio**

Manipulating Expressions

- Collect like terms
- Expand a single bracket
- Expand two/**three** brackets
- **Algebraic fractions**
- **Solve with algebraic fractions**
- **Algebraic proof**

Percentages and Interest

- Equivalent FDP
- Find Percentages
- Increase and decrease
- Simple and compound interest
- Reverse percentages
- **Iterative processes**

Trigonometry

- Find a side using SOHCAHTOA
- Find and angle using SOHCAHTOA
- **Sine rule**
- **Cosine rule**
- **Area of a triangle using sine rule**
- Exact trig values

Angles and Bearings

- Draw and measure angles
- Scales drawing
- Angle rules
- Angles in parallel lines
- **Bearings**

Enlargement and Similarity

- Enlarge a shape
- Enlarge a shape from a point
- **Negative enlargement**
- Scale factors
- Similar shapes
- **Area and volume of similar shapes**
- Congruency

Pythagoras

- Squares and square roots
- Calculate hypotenuse
- Calculate shorter side
- **SOHCAHTOA**
- **Pythagoras and SOHCAHTOA in 3D**

Number and Sequences

- Factors, multiples and primes
- Product of Prime factors
- HCF and LCM
- Sequences
- Fibonnacci
- Nth term
- **Quadratic nth term**

Non Calculator Methods

- 4 operations
- Fractional arithmetic
- **Recurring decimals**
- **Surds**
- **Rationalise a denominator**
- Rounding
- Estimating
- Error intervals
- **Bounds**

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