

Year 10 — Full learning objectives

61 objectives across 10 units · MYP Year 4

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UNIT 1

Sequences

1. I can representing sequences as pictures, tables, graphs and algebra.
2. I can determine the general rule from shifted number sequences, e.g. 1 less than square numbers, $u_n = n^2 - 1$.
3. I can determine the general rule of arithmetic sequences and solve to find u_1 and d .
4. I can determine the general rule of geometric sequences and solve to find u_1 and r .
5. I can working backwards to find u_1 , r , d and n .
6. I can use properties of sequences to solve for unknowns.
7. I can determine a recursive sequence for arithmetic and geometric sequences using $u_{\{n+1\}} = u_n + d$ and $u_{\{n+1\}} = u_n * r$.

UNIT 2

Exponents and Indices

1. I can index laws - full coverage, including fractional and negative.
2. I can solve by comparing exponents of the same base.
3. I can solve equations of the type $a^{(-2/3)} = 1/25$.
4. I can surds with brackets, rationalise the denominator with the conjugate.
5. I can mixed Sequence with surds.

UNIT 3

Algebra

1. I can solving Multi-step algebraic equations involving rational and irrational coefficients.
2. I can solve equations with square and cube roots.
3. I can solving equations with brackets.
4. I can factorising Quadratics $a \geq 1$.
5. I can algebraic Fractions.
6. I can simplify algebraic fractions requiring factorisation (including surds).
7. I can systems of Equations.

UNIT 4

Coordinate Geometry

1. I can $y = mx + b$.
2. I can slope (conceptual and formulaic).
3. I can parallel and perpendicular lines.
4. I can problem solve with coordinates.
5. I can distance between 2 points and midpoint (and splitting a line segment into a ratio).

UNIT 5

Functions

1. I can function Notation (Numeric).
2. I can function Notation (Algebraic).
3. I can graphical Representation.
4. I can domain and Range.
5. I can linear functions (including piecewise).

Quadratic Equations

1. I can optimisation Problems.
2. I can factorise and solve quadratics (applications of the null factor theorem).
3. I can solve equations with Algebraic fractions (quadratic).
4. I can systems of equations linear and quadratic equations (algebraic).
5. I can identify key features of quadratic function ($f(0)$, max, line of symmetry and $f(x)=0$).

UNIT 7

Geometry

1. I can right Trig and Pythagoras in 3D.
2. I can volume and surface area.
3. I can volume of cones, cylinders, pyramids. Surface area of cylinder.
4. I can bearings.
5. I can rounding, approximations, and significant figures.
6. I can percentage error (absolute value).
7. I can +/- error, compound calculations (sum, product).

Statistics

1. I can measures of center from grouped data.
2. I can representations (Frequency / relative frequency histograms).
3. I can cumulative Frequency.
4. I can quartiles, box-and-whisker, IQR, visualization of skew.
5. I can shape and skew.
6. I can effect of skew on measures of center.
7. I can measures of variability (Range, IQR, Std Dev).
8. I can outliers and effect on measures of center and variability.

UNIT 9

Bivariate Statistics

1. I can construct a scatter plot.
2. I can define dependent and independent variables.
3. I can correlation vs causation.
4. I can pearson's correlation coefficient.
5. I can plot line of regression by eye.
6. I can find line of best fit using technology.
7. I can interpret and use line of best fit.
8. I can interpreting the regression equation in context.

IDU — Aesthetics

1. I can cross-subject analysis of aesthetics from a mathematical and language perspective.
 2. I can infusion of age-appropriate Theory of Knowledge (TOK) techniques.
 3. I can consistent language and resource structure across subjects.
 4. I can final assessment in line with IDU expectations.
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