

Algebra Essentials

- Solve equations with one unknown involving multiple operations; the variable may appear more than once. Operations involved include addition, subtraction, multiplication, division, distributing, and utilizing manual and GDC techniques.
- Rearrange literal equations to isolate a given variable.
- Formulate and graph equations of straight lines from provided information in different forms, including point-slope, slope-intercept, standard (general).

Systems of Equations

- Solve systems of linear equations in two variables using substitution, elimination and graphical methods.

Functions

- Know definition and representations of a function and determine domain and range with a variety of relations over Z , R .
- Graph piecewise functions and determine their domain and range.
- Understand and represent multiple transformations (translations, dilations, reflections) on points and functions algebraically and graphically. Parent functions include: linear, quadratic, absolute value, exponential, square root and rational functions.
- Find and verify inverse functions both algebraically and graphically.
- Derive composite functions from given functions.

Quadratics

- Solve quadratic equations utilizing a variety of methods, including factoring and the quadratic formula.
- Analyze quadratic equations to identify the key features of parabolas.
- Solve systems of equations involving both linear and quadratic equations.

Exponents

- Write equations for and graph exponential functions applied to a variety of contexts.
- Apply laws of exponents, including zero and negative exponents and scientific notation.
- Interchange between rational exponents and radicals to evaluate and simplify expressions.

Logarithms

- Convert between logarithmic and exponential equations and use logarithms to solve exponential equations.

Radicals

- Solve radical equations.
- Simplify and perform operations on radicals (surds).

Triangle Trigonometry

- Use trigonometric ratios to find unknowns in right triangles and apply to contextual problems.
- Use Sine and Cosine Rule to find unknowns and calculate area of non-right triangles and apply to contextual problems.

Unit Circle

- Understand the relationship between trigonometric ratios and the unit circle (in degrees only).

Triq Graphs

- Draw periodic trigonometric functions using knowledge of transformations and apply to a variety of contexts.

Probability

- Use Venn diagrams, tree diagrams and tables as tools to calculate probabilities of single and compound events.

Statistics

- Calculate measures of central tendency (mean, median, mode) for discrete data.
- Calculate measures of spread including range, and interquartile range.
- Represent and interpret data using bar graphs, histograms, stem-and-leaf plots, box and whisker plots, and cumulative frequency graphs.

Regression

- Plot data and find lines and curves of best fit (manually & GDC).

Sets, Venn Diagrams and Number Systems

- Represent number systems using set notation (N, Z, Q, R, Venn diagrams, subset, union, intersection, element of, null set).