GRADE 11 Syllabus

Indices

1. Adding and subtracting indices
2. Indices with zero index
3. Indices with positive index
4. Indices with negative index
5. Indices with fractional index
6. Multiplying indices which have the same base
7. Dividing indices which have the same base
8. Indices with brackets
9. Indices with brackets (including coefficients greater than 1)

Circles

1. Parts of a circle
2. Circumference of a circle
3. Central angles
4. Area of a circle
5. Length of an arc
6. Sector of a circle
7. Segments of a circle

Statistics

1. Collect, classify and tabulate statistical data.
2. Group data and ungroup data
3. Read, interpret and draw influences from tables and statistical diagrams
4. Construct and use line graphs, bar charts and pie charts
5. Calculate the mean, median and mode for individual data
6. Lower quartile
7. Upper quartile
8. Inter-quartile range
9. Semi-inter-quartile range

Probability

1. Identify independent events
2. Identify mutually exclusive events
3. Calculate the probability of mutually exclusive events and complementary events
4. Calculate the probability of “A or B” and the probability of “A and B”
5. Find conditional probabilities
6. Calculate probability using tree diagrams.

Transformation

1. Translate plane shapes, given the translation vector.
2. Find the translation vector, given the object and its image.
3. Reflect plane shapes, given the mirror line.
4. Find the mirror line, given the object and its image.
5. Find the image of an object, given the angle and centre of rotation.
6. Find the angle of rotation, given the object and its image.
7. Find the image of an object, given the scale factor and the centre of enlargement
8. Determine the scale factor of an enlargement, given an object and its image.
9. Recognize transformation as a translation, reflection, rotation or enlargement, for a given object and image.

Function

1. Define a function
2. State the domain and range of a function
3. Solve a function by substitution
4. Find the inverse of a function
5. Solve problems involving composite functions

Vector and Matrices

1. Use graphs to describe vectors.
2. Derive the method for computing the resultant of two vectors.
3. Solve problems that involve vector addition.
4. State/identify the relationship between two vectors.
5. Define a matrix
6. Identify the dimensions (order) of a matrix
7. Identify the elements in a matrix
8. Perform addition, subtraction and scalar multiplication of matrices.
9. Identify the symbol used to denote the determinant of a matrix
10. Determine the determinant of a two-by-two matrix
11. Identify the symbol used to denote the inverse of a matrix.
12. Determine the inverse of a two-by-two matrix
13. Multiplication of 2 x 2 matrices
14. Using matrices to solve a pair of simultaneous equations

Variation

1. Define direct variation
2. Write and solve direct variation problems
3. Define inverse variation
4. Write and solve inverse variation problems

Trigonometry

1. Use the Cosine rule to find a length of an unknown side of a non-right-angled triangle when the lengths of two sides and the size of the including angle are given.
2. Use the 'Cosine Rule' to find the size of an unknown angle of a non-right-angled triangle when the lengths of the three sides are given.
3. State that the 'Sine Rule' can be used when sides and their opposite angles are given.
4. Find the area of a triangle using the formula $Area = \frac{1}{2} abSinC$.

Similar Figure

1. Identify similar figures
2. Similar ratios
3. Side lengths and angle measures in similar figures
4. Perimeter of similar figures
5. Area of similar figures

Similar Solids

1. Identify similar solids
2. Similar ratios
3. Surface area of similar solids
4. Volume of similar figures