

JAMB Topics for Mathematics

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Broad Topic

Sub Topics

Number Bases

- Operations in different number bases from 2 to 10
- Conversion from one base to another including fractional parts

Fractions, Decimals, Approximations and Percentages

- Fractions and decimals
- Significant figures
- Decimal places
- Percentage errors
- Simple interest
- Profit and loss percent
- Ratio, proportion and rate
- Shares and valued added tax (VAT)

Indices, Logarithms and Surds

- Laws of indices
- Standard form
- Laws of logarithm
- Logarithm of any positive number to a given base
- Change of bases in logarithm and application
- Relationship between indices and logarithm
- Surds

Sets

- Types of sets
- Algebra of sets
- Venn diagrams and their applications

Polynomials

- Change of subject of formula
- Factor and remainder theorems
- Factorization of polynomials of degree not exceeding 3
- Multiplication and division of polynomials
- Roots of polynomials not exceeding degree 3
- Simultaneous equations including one linear one quadratic
- Graphs of polynomials of degree not greater than 3

Broad Topic

Sub Topics

Variation

- Direct
- Inverse
- Joint
- Partial
- Percentage increase and decrease

Inequalities

- Analytical and graphical solutions of linear inequalities
- Quadratic inequalities with integral roots only

Progression

- nth term of a progression
- Sum of A.P. and G.P.

Euclidean Geometry

- Properties of angles and lines
- Polygons: triangles, quadrilaterals and general polygons
- Circles: angle properties, cyclic quadrilaterals and intersecting chords
- Construction

Mensuration

- Lengths and areas of plane geometrical figures
- Lengths of arcs and chords of a circle
- Perimeters and areas of sectors and segments of circles
- Surface areas and volumes of simple solids and composite figures
- The earth as a sphere: longitudes and latitudes

Loci

- Locus in 2 dimensions based on geometric principles relating to lines and curves

Coordinate Geometry

- Midpoint and gradient of a line segment
- Distance between two points
- Parallel and perpendicular lines
- Equations of straight lines

Binary Operations

- Properties of closure, commutativity, associativity and distributivity
- Identity and inverse elements (simple cases only)

Matrices and Determinants

- Algebra of matrices not exceeding 3×3

Broad Topic

Sub Topics

- Determinants of matrices not exceeding 3×3
- Inverses of 2×2 matrices [excluding quadratic and higher degree equations]

Trigonometry

- Trigonometrical ratios of angles
- Angles of elevation and depression
- Bearings
- Areas and solutions of triangle
- Graphs of sine and cosine
- Sine and cosine formulae

Differentiation

- Limit of a function
- Differentiation of explicit algebraic and simple trigonometrical functions – sine, cosine and tangent

Application of Differentiation

- Rate of change
- Maxima and minima

Integration

- Integration of explicit algebraic and simple trigonometrical functions
- Area under the curve

Representation of Data

- Frequency distribution
- Histogram, bar chart and pie chart

Measures of Location

- Mean, mode and median of ungrouped and grouped data – (simple cases only)
- Cumulative frequency

Measures of Dispersion

- Range, mean deviation, variance and standard deviation

Permutation and Combination

- Linear and circular arrangements
- Arrangements involving repeated objects

Probability

- Experimental probability (tossing of coin, throwing of a dice etc)
- Addition and multiplication of probabilities (mutual and independent cases)

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