الإمارات العربية المتحدة
وزارة التربية والتعليم

TEACHERS LICENSING SYSTEM
نظام ترخيص المعلمين

اختبار الإمارات القياسي
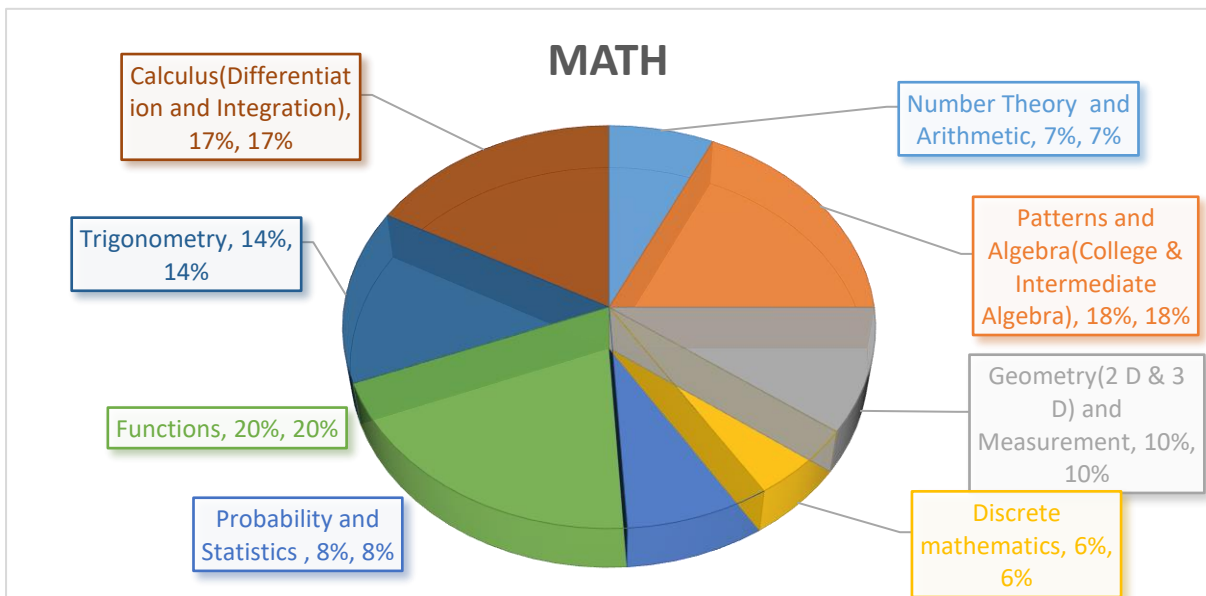EmSAT
The Emirates Standardized Test

Math Test Study Guide

Test Duration: 2.5 hours

This Mathematics Test is a computer-based test that includes but not limited to eight major parts as shown in the table below:

Test sections, questions, and options are randomized. Test Sections and subsections are timed by the computer. Test takers can see how much time they have throughout the test.

#	Topic	Weight
1	Number Theory and Arithmetic	7%
2	Patterns and Algebra	18%
3	Geometry (2D & 3D) and Measurements	10%
4	Discrete Mathematics	6%
5	Probability and Statistics	8%
6	Functions	20%
7	Trigonometry	14%
8	Calculus (Differentiation and Integration)	17%
	Total	**100%**

MATH

- Calculus(Differentiation and Integration), 17%, 17%
- Number Theory and Arithmetic, 7%, 7%
- Patterns and Algebra(College & Intermediate Algebra), 18%, 18%
- Trigonometry, 14%, 14%
- Geometry(2 D & 3 D) and Measurement, 10%, 10%
- Functions, 20%, 20%
- Discrete mathematics, 6%, 6%
- Probability and Statistics , 8%, 8%

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Part 1: Number Theory and Arithmetic
To understand, compare, and, apply concepts related to

- Fractions
- GCF and LCM
- Prime and Composite
- Divisibility
- Order of operations
- Arithmetic and geometric Sequence
- Scientific Notation
- Percentage
- Exponents
- Odd and Even
- Equations and inequalities

Part 2: Patterns and Algebra
To understand, compare, and, apply concepts related to

- Solving equations
- Long and Synthetic Division
- Solve system of equations
- Factoring
- Polynomials
- Solving system of inequalities
- Solving inequalities

Part 3: Geometry and Measurements
To understand, compare, and, apply concepts related to

- Points, Lines, segments, and angles
- Congruent and similar triangles
- Metric and Imperial Units
- Analytic Geometry
- Polygons
- Perimeters, Areas, and volumes
- Units conversions
- Transformations
- Dilation

Part 4 : Discrete Mathematics
To understand, compare, and, apply concepts related to

- Basic Structures: Sets,
- Sequences,
- Sums
- Matrices
- Logic
- Permutations and Combinations.
- Recursion

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Math Test Study Guide

- Languages and Grammars
- Relations, basic definitions and properties, special types of relations
- Introduction to graph theory, basic definitions and properties, special types of graphs

Part 5: Probability and Statistics
To understand, compare, and, apply concepts related to

- Central tendency measures
- Dispersion measures
- Permutation and Combination
- Binomial Theorem
- Normal Distribution
- Data representations
- Probabilities

Part 6 : Functions
To understand, compare, and, apply concepts related to

- Domain and Range
- Identify Functions
- Evaluate Functions
- Slope
- Linear, Quadratic… Functions
- Functions Graph
- Transformation
- Write equation of a linear function
- Add, Subtract, Multiply, and Divide functions
- Composite Functions
- Inverse Functions
- Odd and Even Functions
- Exponential and Logarithmic Functions

Part 7: Trigonometry
To understand, compare, and, apply concepts related to

- The 6 trigonometric Ratios
- Law of Sine and Cosine
- Sine and Cosine Functions
- Solving Triangles
- Trigonometric Identities
- Bearing
- Trigonometric Equations

Part 8: Calculus
To understand, compare, and, apply concepts related to

- Limits
- Derivatives
- Integrals
- Continuity
- Areas and Volume
- Series and sequences
- Techniques of integration