



Maths Topics for Bumblebee: 16-18 Years Old

Mathematics Knowledge Test will assess the following topics:

Algebra: Understanding and using algebraic concepts and notation, including equations, expressions, formulae, and functions, and solving equations and inequalities. This includes topics such as simplifying expressions, solving linear and quadratic equations, and graphing linear and quadratic functions. Also, it includes advanced algebraic concepts such as logarithms, matrices, exponentials and complex numbers.

Calculus: Understanding and using concepts of calculus such as limits, derivatives, integration, and solving differential equations. This includes topics such as differentiation and integration techniques, applications of calculus in optimization, related rates, and solving differential equations.

Trigonometry: Understanding and using concepts of trigonometry such as right triangle trigonometry, the unit circle and trigonometric functions. This includes topics such as solving problems involving trigonometric ratios and angles, and understanding the relationship between trigonometry and geometry.

Vectors: Understanding and using vector algebra and geometry, including vector addition and subtraction, scalar multiplication and vector products.

Series: Understanding and using concepts of series, including arithmetic, geometric and binomial series, series of functions and Taylor series.

Coordinate geometry: Understanding and using concepts of coordinate geometry such as graphing points on the coordinate plane, using coordinates to prove geometric theorems and polar coordinates.

Number theory: Understanding and using concepts of number systems, number theory and number properties, including prime numbers, factors, multiples and primes.

Proofs and mechanics: Understanding and using concepts of proof, including mathematical reasoning, mathematical induction, and mechanics.