## *PERFORMANCE BANDS*

### MATHEMATICS

*The typical performance in this band:*

|  |  |
| --- | --- |
| ***Band 6*** | * Exhibits extensive knowledge and skills appropriate to the Mathematics course
* Uses sophisticated multi-step reasoning
* Integrates ideas of calculus with strong algebraic, deductive and modelling skills to successfully solve difficult problems
* Exhibits excellent problem solving skills
* Communicates effectively using appropriate mathematical language, notation, diagrams and graphs
 |
| ***Band 5*** | * Exhibits sound knowledge and skills appropriate to the Mathematics course
* Uses multi-step logical reasoning in both numerical and theoretical contexts such as problems in calculus, geometry and probability
* Combines ideas of calculus with algebraic, deductive and modelling skills to successfully solve many difficult problems
* Exhibits a wide range of problem solving skills such as applications of series
* Communicates effectively using mathematical language, notation, diagrams, and graphs
 |
| ***Band 4*** | * Exhibits the manipulative skills and knowledge base appropriate to the Mathematics course
* Uses logical reasoning in both numerical and theoretical contexts such as problems in calculus and geometry
* Identifies appropriate approaches to the solution of difficult problems
* Uses calculus and other methods to determine the features of, and to graph, a wide range of functions
* Successfully applies calculus and other appropriate ideas to model practical problems
* Communicates using mathematical language, notation, diagrams and graphs
 |
| ***Band 3*** | * Consistently applies arithmetic and algebraic procedures correctly
* Applies geometrical reasoning in a numerical context
* Graphs functions such as 3sin 2*x*, log *x* and e*x*
* Consistently applies rules of differentiation and basic integration correctly
* Uses calculus to determine the features of, and to graph, functions such as cubic polynomials
* Solves simple problems involving series
 |
| ***Band 2*** | * Correctly applies arithmetic and basic algebraic procedures
* Recalls many of the formulae and algorithms appropriate to the Mathematics course, such as Simpson’s rule, the sine rule, and the cosine rule
* Graphs simple functions such as linear functions, quadratics, sin *x* and cos *x*
* Finds derivatives of basic functions such as polynomials, sin *x* and e*x*
* Uses the rules of differentiation such as the product rule
* Solves numerical problems involving the geometry of triangles
 |
| ***Band 1*** |  |