**MATHEMATICS - GRADE 12 – 2021**

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| **TOPIC** | **ASSESSMENT STANDARDS** | **PORTFOLIO ASSESSMENT TASKS** |
| **PHASE 1 (23 November 2020 – 9 April 2021)** | | |
| **Algebra and Functions** | Exponents, exponential equations and exponential function | **Task 1:** Assignment  Statistics  1 – 5 March  **Task 2:** Investigation: Trigonometry  8 – 12 March    **Task 3:** Controlled Test 29 Mar – 9 April |
| **Probability** | Revision of rules |
| Venn Diagrams and Tree diagrams |
| Two way tables and Independent events |
| **Statistics** | Bivariate data and regression; correlation |
| **Number patterns** | Arithmetic Series |
| Geometric Series |
| Infinite Geometric series; Sigma notation |
| **Trigonometry** | Compound Angle and Double Angle formulae |
| Identities and Equations |
| **PHASE 2 (12 April 2021 – 9 July 2021)** | | |
| **Analytical Geometry** | Equation of a circle (any centre) | **Task 4:** Controlled test Calculus  24 – 28 May |
| Equations of tangents to circles |
| **Polynomials** | Remainder and Factor theorem |
| **Calculus** | Calculus; limits and first principles |
| Rules for differentiation |
| Sketch graphs of cubic functions |
| Applications to problems – max / min; rates of change |
| **Financial Mathematics** | Timelines (Gr11) and Calculation of time period |
| Future value annuity formula |
| Present value annuity formula |
| **Trigonometry** | Functions y = sin k(x + p) + q ; y = cos k(x + p) + q and  y = tan k(x + p) + q |
| Solution of problems in 2 and 3 dimensions |
| **PHASE 3 (26 July 2021 – 22 October 2021)** | | |
| **Euclidean Geometry** | Proportional Intercept theorems | **Task 5:** Controlled Test Euclidean Geometry  10 – 13 Aug  **Task 6:** Trials Exam  30 Aug – 17 Sept |
| Similar triangles |
| Proof of the theorem of Pythagoras |
| **Probability** | Dependent and Independent events |
| Venn Diagrams and other techniques |
| Fundamental counting principle |
| **Functions** | Definition of a function |
| Inverses of functions |
| Logarithmic function |
| **Consolidation** | Revision |