

## 2021 ATP: Grade – Term 1: TECHNICAL MATHEMATICS GRADE 12

TERM 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
<b>CAPS Topics</b>	<b>Complex numbers</b>			<b>Analytical Geometry</b>		<b>Functions: Polynomials</b>		<b>Differential Calculus</b>		
	1. There are numbers other than those studied in earlier grades called imaginary numbers and complex numbers. 2. Add, subtract, divide, multiply and simplify imaginary numbers and complex numbers. 3. Solve equations involving complex numbers.			Use a two-dimensional Cartesian co-ordinate system to determine: <ul style="list-style-type: none"> <li>the equation of a circle with centre at the origin (centre is (0;0));</li> <li>the equation of a tangent to a circle at a given point on the circle; and</li> <li>point/s of intersection of a circle and a straight line.</li> <li>Plotting of the graph of ellipse</li> </ul>		1. An intuitive understanding of the concept of a limit. 2. Differentiation of specified functions from first principles. 3. Use of the specified rules of differentiation. 4. The equations of tangents to graphs. 5. The ability to sketch graphs of cubic functions.		1. Practical problems involving optimisation and rates of change (including the calculus of motion). 2. Basic integration.		
<b>SBA</b>	Test					Investigation or project		Assignment		

## 2021 ATP: Term 2: TECHNICAL MATHEMATICS GRADE 12

TERM 2	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10 -11
<b>CAPS Topics</b>	<b>Integration</b>		<b>Trigonometry</b>			<b>Euclidean Geometry</b>				
	Understand the concept.  Integrate the following functions: <ul style="list-style-type: none"> <li><math>kx^n</math></li> <li><math>\frac{k}{x}</math></li> <li><math>ka^{nx}</math></li> </ul>	Applying integration to determine the magnitude of an area included by a curve and the $x$ -axis or by a curve, the $x$ -axis and the ordinates $x = a$ and $x = b$ , where $a, b \in Z$ .	Applying trigonometric identities. Sine, Cosine and Area rules. Solving problems in 2 and 3 dimensions.			Revise earlier work on the necessary and sufficient conditions for polygons to be similar. Introduce and apply the following theorems: <ul style="list-style-type: none"> <li>That a line drawn parallel to one side of a triangle divided the other two sides proportionally</li> <li>That equiangular triangles are similar.</li> <li>That triangles with sides in proportion are similar.</li> </ul>				Consolidation
<b>SBA</b>	Assignment					Assignment				

## 2021 ATP: Term 3: TECHNICAL MATHEMATICS GRADE 12

TERM 3	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 9
<b>CAPS Topics</b>	Circles, angles and angular movement (grade 11)			Finance, growth and decay (grade 11)			Revision					
	<ul style="list-style-type: none"> <li>Angles and arcs</li> <li>Degrees and radians</li> <li>Sector and segments</li> <li>Angular and Circumferential velocity</li> </ul>			Use simple and compound decay formulae The effect of different periods of compound growth and decay, including nominal and effective interest rates								
<b>SBA</b>	Test									Trial Examinations		

## 2021 ATP: Term 4: TECHNICAL MATHEMATICS GRADE 12

TERM 4 (20 days)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	EXAM	
	Revise Paper 1 Work	Revise Paper 2 Work	Revise Paper 1 Work	Revise Paper 2 Work	Final Examination							
<b>SBA</b>											<b>Paper 1 3 hours</b>	
											Algebraic expressions, equations and inequalities (nature of the roots, logs, binary and complex numbers)	50
											Functions and graphs	35
											Finance, growth and decay	15
											Differential Calculus and Integration	35
											<b>TOTAL MARK</b>	<b>150</b>
<b>TOTAL NUMBER OF SBA TASKS 6</b>												
Term 1 Test (10%), Assignment (15%) and Investigation / Project (15%)												
Term 2 Test (10%)												
Term 3 Test (10 %) and Trial (30 %)												
Term 4 Final Examination												
											<b>Paper 2 3 hours</b>	
											Euclidean Geometry	40
											Analytical Geometry	25
											Trigonometry	50
											Mensuration, Circles, angles and angular movement	35
											<b>TOTAL MARK</b>	<b>150</b>

