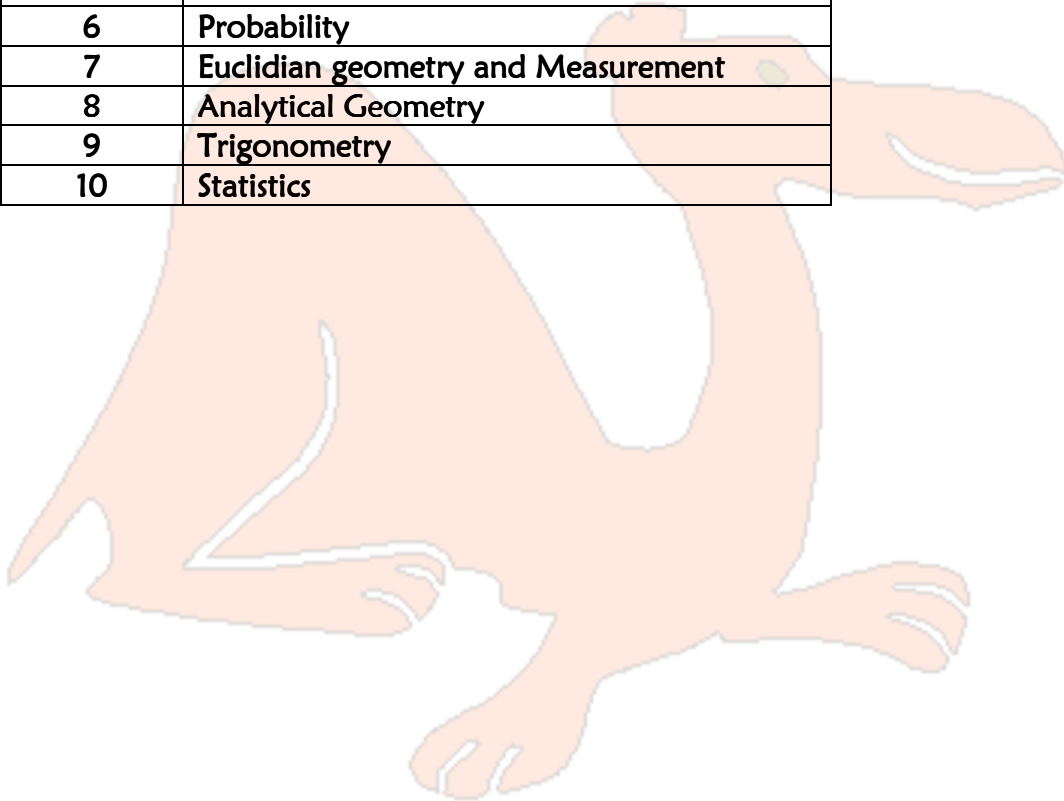




CAMI Education linked to CAPS: Mathematics Grade 11

The main topics in the Mathematics Curriculum:

NUMBER	TOPIC
1	Functions
2	Number patterns, sequences and series
3	Finance, growth and decay
4	Algebra
5	Differential Calculus
6	Probability
7	Euclidian geometry and Measurement
8	Analytical Geometry
9	Trigonometry
10	Statistics





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GRADE 11 Term 1		
TOPIC	CONTENT	CAMI KEYS
11.4 Exponents and surds	<p>1. Simplify expressions and solve equations using the laws of exponents for rational exponents where:</p> $x^{\frac{p}{q}} = \sqrt[q]{x^p}; x > 0; q > 0.$ <p>2. Add, subtract, multiply and divide simple surds.</p> <p>3. Solve simple equations involving surds.</p>	4.3.5.1 4.3.5.2 4.3.5.3 4.3.5.4 4.3.5.5 4.3.5.6 4.3.5.7 4.3.6.1 4.3.6.2 4.3.6.3 4.3.6.4 4.3.6.5 4.3.6.6 4.3.6.7 4.3.6.8 4.3.6.9 4.9.1.1 4.9.1.2 4.9.1.3 4.9.1.4 4.9.2.1 4.9.2.2 4.9.2.3 4.9.3
11.4 Equations and inequalities	<p>1. Complete the square.</p> <p>2. Quadratic equations (by factorization and by using the quadratic formula).</p>	4.2.9.1 4.2.9.2 4.2.9.3 4.2.9.4 4.2.10.1 4.2.10.2 4.2.10.3 4.2.10.4 4.2.5.5 4.2.5.6 4.2.6.1



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	<p>3. Quadratic inequalities in one unknown (interpret solutions graphically).</p> <p>NB: It is important that the solving of equations in two unknowns is important to be used in other equations like hyperbola-straight line as this is normal in the case of graphs.</p> <p>4. Equations in two unknowns, one of which is linear and the other quadratic.</p> <p>5. Nature of roots.</p>	<p>4.2.6.2 4.2.6.3 4.2.7.1 4.2.7.2 4.2.8.1 4.2.8.2</p> <p>5.3.3.1 5.3.2.2</p> <p>4.6.2.3 4.6.2.4</p> <p>5.4.1.1 5.4.1.2 5.4.1.3 5.4.1.4 5.4.1.5 5.4.1.6 5.4.1.7 5.4.1.8 5.4.1.9 4.2.5.7</p>
<p>11.2 Number patterns</p>	<p>Patterns Investigate number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic.</p>	<p>4.1.5.2 4.1.5.3 4.1.5.4 4.1.5.5 4.1.7.1 4.1.7.8 4.1.4.3</p>
<p>11.8 Analytical</p>	<p>Derive and apply: 1. the equation of a line through two given</p>	<p>8.8.5.1</p>



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Geometry	<p>points,</p> <p>2. the equation of a line through one point and parallel or perpendicular to a given line; and</p> <p>3. the inclination (θ) of a line, where $m = \tan \theta$ is the gradient of the line ($0^\circ < \theta < 180^\circ$).</p>	<p>8.8.5.2 8.8.6.1 8.8.6.2</p> <p>8.8.4.1 8.8.4.2</p> <p>8.8.3.3</p>
GRADE 11 Term 2		
11.1 Functions	<p>1. Revise the effect of the parameters a and q on the graphs of the functions defined by:</p> <ul style="list-style-type: none"> • $y = f(x) = a(x + p)^2 + q$ • $y = f(x) = \frac{a}{x + p} + q$ • $y = f(x) = ab^{x+p} + q$ where $b > 0; b \neq 1$ <p>2. Investigate numerically the average gradient between two points on a curve and develop an intuitive understanding of the concept of the gradient of a curve at a point.</p> <p>3. Point by point plotting of basic graphs defined by $y = \sin \theta$, $y = \cos \theta$, $y = \tan \theta$ for $[-360^\circ; 360^\circ]$.</p> <p>4. Investigate the effect of the parameter k on the graphs of the functions defined by $y = \sin(k\theta)$, $y = \cos(k\theta)$ and $y = \tan(k\theta)$.</p> <p>5. Investigate the effect of the parameter p on the graphs of the functions defined</p>	<p>6.4.1.3 6.4.5.1 6.4.5.2 6.4.5.3 6.4.5.4 6.4.6 6.5.5.6 6.6.2 6.5.5.3 6.4.3 6.9.1 6.7.5</p> <p>7.8.2.3 7.8.2.4 7.8.2.5 7.8.2.6 7.8.2.8</p>



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	<p>by $y = \sin(\theta + p)$, $y = \cos(\theta + p)$ and $y = \tan(\theta + p)$.</p> <p>6. Draw the graphs defined by $y = a \sin(x + p)$ $y = a \cos(x + p)$ $y = a \tan(x + p)$ At most two parameters at a time.</p>	7.8.2.9
11.9 Trigonometry	<p>1. Derive and use the identities $\tan \theta = \frac{\sin \theta}{\cos \theta}$, $\theta \neq k.90^\circ$, k an odd integer; and $\sin^2 \theta + \cos^2 \theta = 1$.</p> <p>2. Derive and use the reduction formulae to simplify the following expressions:</p> <ul style="list-style-type: none">• $\sin(90^\circ \pm \theta)$; $\cos(90^\circ \pm \theta)$• $\sin(180^\circ \pm \theta)$; $\cos(180^\circ \pm \theta)$; $\tan(180^\circ \pm \theta)$• $\sin(360^\circ \pm \theta)$; $\cos(360^\circ \pm \theta)$; $\tan(360^\circ \pm \theta)$• $\sin(-\theta)$; $\cos(-\theta)$; $\tan(-\theta)$ <p>3. Determine for which values of a variable an identity holds.</p> <p>4. Determine the general solution of trigonometric equations. Also, determine solutions in specific interval.</p>	7.5.1.1 7.5.2.1 7.5.3.1 7.5.3.3 7.4.1.1 7.4.1.3 7.4.1.9 7.4.2.1 7.4.2.4 7.4.2.2 7.3.1.3 7.3.1.5 7.3.2.1 7.3.2.3 7.4.2.6 7.4.2.7 7.4.3.1 7.4.3.2 7.4.3.3 7.4.3.4 7.4.3.6 7.6.5.1 7.6.5.3 7.6.2.3 7.6.2.5 7.6.6.1 7.6.6.3



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		7.6.6.5 7.6.6.7 7.6.7.1 7.6.7.3 7.6.8.1 7.6.7.5 7.6.7.7
GRADE 11 Term 3		
11.7 Measurement	Revise grade 10 content.	Revision
11.7 Euclidian geometry	<p>Accept results established in earlier grades as axioms and also that a tangent to a circle is perpendicular to the radius, drawn to the point of contact.</p> <p>Then investigate and prove the theorems of the geometry of circles:</p> <ul style="list-style-type: none"> • The line drawn from the centre of a circle perpendicular to a chord bisects the chord; • The perpendicular bisector of a chord passes through the centre of the circle; • The angle subtended by an arc at the centre of a circle is double the size of the angle subtended by the same arc at the circle (on the same side of the chord as the centre); • Angles subtended by a chord of the circle, on the same side of the chord, are equal; • The opposite angles of a cyclic quadrilateral are supplementary; • Two tangents drawn to a circle from the same point outside the circle are equal in length; • The angle between the tangent to a circle and the chord drawn from the point of contact is equal to the angle in the alternate segment. <p>Use the above theorems and their converses,</p>	8.5.1.1 8.5.1.2 8.5.2 8.5.3 8.5.4.1 8.5.4.2 8.5.6 8.5.8 8.5.9 8.5.7 8.6.2 8.6.1 8.6.3 8.6.4



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11.10 Statistics	<ol style="list-style-type: none">1. Histograms2. Frequency polygons3. Ogives (cumulative frequency curves)4. Variance and standard deviation of ungrouped data.5. Symmetric and skewed data.6. Identification of outliers.	10.3.2.1 10.5.4 10.3.5
Revision		

