TAS TEACHER COMMUNITY

SUGGESTED

2024 Maths FET ATPs based on the 2023/2024 DBE ATPs compiled by TAS

THE ANSWER SERIES *Your Key to Exam Success*

THE ANSWER SERIES *Your Key to Exam Success*

2024 GRADE 10 MATHS ATP

Jan 2024

*** 1 week less than in 2023**

2024 National RATP: MATHEMATICS GRADE 10 – TERM 1 (46 days)

TERM 1	WEEK 1 17 – 19 Jan	WEEK 2 22 – 26 Jan	WEEK 3 29 Jan – 2 Feb	WEEK 4 5 – 9 Feb	WEEK 5 12 – 16 Feb	WEEK 6 19 – 23 Feb	WEEK 7 26 Feb – 1 March	WEEK 8 4 – 8 March	WEEK 9 11 – 15 March	WEEK 10 18 – 20 March
Topics	Algebraic expressions				*Exponents, equations and inequalities			Trigonometry		
Date completed										
SBA	**Investigation or project**				**&**			**Test (content of term 1)**		

2024 National RATP: MATHEMATICS GRADE 10 – TERM 2 (52 days)

TERM 2	WEEK 1 3 – 5 April	WEEK 2 8 – 12 April	WEEK 3 15 – 19 April	WEEK 4 22 – 26 April	WEEK 5 29 April – 3 May	WEEK 6 6 – 10 May	WEEK 7 13 – 17 May	WEEK 8 20 – 24 May	WEEK 9 27 – 31 May	WEEK 10 3 – 7 June	WEEK 11 10 – 14 June
Topics	*Euclidean Geometry			Analytical Geometry		Functions (Straight line, Parabola, Hyperbola)			Examination		
Date completed											
SBA	**Assignment**				**&**				**JUNE EXAM / CONTROL TEST**		

2024 National RATP: MATHEMATICS GRADE 10 – TERM 3 (53 days)

TERM 3	WEEK 1 9 – 12 July	WEEK 2 15 – 19 July	WEEK 3 22 – 26 July	WEEK 4 29 July – 2 Aug	WEEK 5 5 – 8 Aug	WEEK 6 12 – 16 Aug	WEEK 7 19 – 23 Aug	WEEK 8 26 – 30 Aug	WEEK 9 2 – 6 Sept	WEEK 10 9 – 13 Sept	WEEK 11 16 – 20 Sept
Topics	Functions (Exponential Graph & Trigonometric Functions)			Trigonometry (2D)		*Statistics		*Probability		*Finance and growth	
Date completed											
SBA	**Test**					**Test**					

2024 National RATP: MATHEMATICS GRADE 10 – TERM 4 (52 days)

TERM 4	WEEK 1 1 – 4 Oct	WEEK 2 7 – 11 Oct	WEEK 3 14 – 18 Oct	WEEK 4 21 – 25 Oct	WEEK 5 28 Oct – 1 Nov	WEEK 6 4 – 8 Nov	WEEK 7 11 – 15 Nov	WEEK 8 18 – 22 Nov	WEEK 9 25 – 29 Nov	WEEK 10 2 – 6 Dec	WEEK 11 9 – 11 Dec	EXAM	
Topics	* Measurement	Number Patterns	**Revise Algebra**	**Revise Trigonometry**	**Revise Functions**	**Revise Geometry and Analytical Geometry**	**Final Examination**			**Admin**		**PAPER 1 100 marks 2 hours**	
Date completed												**Algebra** **Number Patterns** **Finance, growth** **Functions and Graphs** **Probability**	**30** **15** **10** **30** **15**
SBA	**Test**						**FINAL EXAMINATION**						
	TOTAL NUMBER OF SBA TASKS 7 **Term 1 Investigation / Project (15%) and Test (14%)** **Term 2 Assignment (15%) and MID-YEAR EXAMINATION / CONTROL TEST (14%)** **Term 3 Test (14%) and Test (14%)** **Term 4 Test (14%)**											**PAPER 2 100 marks 2 hours**	
	Final SBA is 40% **Final Exam is 60%**											**Statistics** **Analytical Geometry** **Trigonometry** **Euclidean Geometry & Measurement**	**15** **15** **40** **30**

2024 National RATP: MATHEMATICS GRADE 10 – TERM 1

* 1 week less than in 2023

TERM 1 (46 days)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Topics	**ALGEBRAIC EXPRESSIONS**				***EXPONENTS, EQUATIONS AND INEQUALITIES**			**TRIGONOMETRY**		
	1. Understand that real numbers can be rational or irrational. 2. Establish between which two integers a given simple surd lies. 3. Round real numbers to an appropriate degree of accuracy. 4. Multiplication of a binomial by a trinomial. 5. Factorisation to include types taught in Grade 9 and: • trinomials • grouping in pairs • sum and difference of two cubes 6. Simplifying, adding and subtracting algebraic fractions using factorisation with denominators of cubes (limited to sum and difference of cubes). 				1. Revise laws of exponents learnt in Grade 9 where $x, y > 0; m, n \in \mathbb{Z}$: • $x^m \times x^n = x^{m+n}$ • $x^m \div x^n = x^{m-n}$ • $(x^m)^n = x^{mn}$ • $x^m \times y^m = (xy)^m$ Also, by definition: $x^{-n} = \frac{1}{x^n}, x \neq 0$ and $x^0 = 1, x \neq 0$ 2. Use the laws of exponents to simplify expressions and solve equations, accepting that the rules also hold for $m, n \in \mathbf{Q}$. 3. 3.1 Revise the solution of linear equations. 3.2 Solve quadratic equations (by factorisation). 3.3 Solve simultaneous linear equations in two unknowns. 3.4 Solve word problems involving linear, quadratic or simultaneous linear equations. 3.5 Solve literal equations (changing the subject of a formula). 3.6 Solve linear inequalities (and show solution graphically). Interval notation must be known.			1. Define trigonometric ratios sin θ, cos θ and tan θ, using the right-angled triangle. 2. Extend the definitions of sin θ, cos θ and tan θ for $0^o \leq \theta \leq 360^o$. 3. Define the reciprocal of the trigonometric ratios cosec θ, sec θ and cot θ, using the right-angled triangles (these three reciprocals should be examined in grade 10 only). 4. Derive values of the trigonometric ratios for the special cases (without using a calculator) $\theta \in \{0°; 30°; 45°; 60°; 90°\}$. 5. Solve simple trigonometric equations for angles between 0° and 90°. 6. Use a diagram to determine the numerical values of ratios for angles from 0° to 360°. ***Two-dimensional problems to be done in Term 3.***		
Date completed										
SBA	**Investigation or project**				**&**			**Test (content of term 1)**		

2024 National RATP: MATHEMATICS GRADE 10 – TERM 2

TERM 2 (52 days)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Topics	**EUCLIDEAN GEOMETRY**			**ANALYTICAL GEOMETRY**		**FUNCTIONS (STRAIGHT LINE, PARABOLA, HYPERBOLA)**			June Exam / Control Test		
	1. Revise basic results established in earlier grades regarding lines, angles and triangles, especially the similarity and congruence of triangles. 2. Define the following special quadrilaterals: the kite, parallelogram, rectangle, rhombus, square and trapezium. Investigate and make conjectures about the properties of the sides, angles, diagonals and areas of these quadrilaterals. Prove these conjectures. 3. Investigate: line segment joining the midpoints of two sides of a triangle and line drawn from the midpoint of one side of a triangle. 4. Solve problems and prove riders using the properties of parallel lines, triangles, quadrilaterals and midpoint theorem.			1. Represent quadrilaterals amongst other geometric figures on a Cartesian co-ordinate system. Derive and apply for any two points $(x_1; y_1)$ and $(x_2; y_2)$ the formulae for calculating the: • distance between the two points; • gradient of the line segment connecting the two points (and from that identify parallel and perpendicular lines); and • coordinates of the mid-point of the line segment joining the two points.		1. The concept of a function, where a certain quantity (output value) uniquely depends on another quantity (input value) should be emphasised. Work with relationships between variables using tables, graphs, words and formulae. Convert flexibly between these representations. **Note:** The graph defined by $y = x$ should be known from Grade 9. 2. Point by point plotting of basic graphs defined by $y = x^2$, $y = \frac{1}{x}$ and $*y = b^x$; $b > 0$ and $b \neq 1$ to discover shape, domain (input values), range (output values), asymptotes, axes of symmetry, turning points and intercepts on the axes (where applicable). 3. Investigate the effect of a and q on the graphs defined by $y = a.f(x) + q$, where $f(x) = x$, $f(x) = x^2$; $f(x) = \frac{1}{x}$ and $f(x) = b^x$, $b > 0$, $b \neq 1$. **** (Exponential and Trigonometric functions in Term 3)***			
Date completed											
SBA	**Assignment & June Exam / Control Test**										

*** 1 week less than in 2023**

2024 National RATP: MATHEMATICS GRADE 10 – TERM 3

TERM 3 (53 days)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Topics	**EXPONENTIAL & TRIGONOMETRIC FUNCTIONS**			**TRIGONOMETRY (2D)**		***STATISTICS**		***PROBABILITY**		***FINANCE AND GROWTH**	
	*The Exponential function ($y = b^x$; $b > 0$ and $b \neq 1$) could be done here in Term 3. 4. Point by point plotting of basic graphs defined by $y = \sin\theta$; $y = \cos\theta$ and $y = \tan\theta$ for $\theta \in [0^o; 360^o]$ 5. Study the effect of α and q on the graphs defined by: $y = \alpha \sin\theta + q$; $y = \alpha \cos\theta + q$; and $y = \alpha \tan\theta + q$ where α and $q \in Q$ and $\theta \in [0°; 360°]$ 6. Sketch graphs, find the equations of given graphs and interpret graphs. **Note:** Sketching of the graphs must be based on the observation of the effects of α and q in number 3 (Term 2) and number 5 (above).			Solve two-dimensional problems involving right-angled triangles.		1. Measures of central tendency in ungrouped data. Calculate the mean. Determine the median and the mode. 2. Measures of central tendency in grouped data: calculation of mean estimate of grouped data and identification of modal interval and interval in which the median lies. 3. Range as a measure of dispersion and extension to include percentiles, quartiles, inter-quartile and semi-inter-quartile range. 4. Five number summary (maximum, minimum and quartiles) and box and whisker diagram. 5. Use the statistical summaries (measures of central tendency and dispersion), and graphs to analyse and make meaningful comments on the context associated with the given data. 6. Histogram.		1. The use of probability models to compare the relative frequency of events with the theoretical probability. 2. The use of Venn diagrams to solve probability problems, deriving and applying the following for any two events in a sample space S: • $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$. • A and B are mutually exclusive if $P(A \text{ and } B) = 0$; • A and B are complementary if they are, ➢ mutually exclusive and $P(A) + P(B) = 1$. Then: $P(B) = P(\text{not } A) = 1 - P(A)$		1. Use the simple and compound growth formulae $A = P(1 + in)$ and $A = P(1 + i)^n$ to solve problems, including interest, hire purchase, inflation, population growth and other real-life problems. Understand the implication of fluctuating foreign exchange rates (e.g. on the petrol price, imports, exports, overseas travel).	
Date completed											
SBA	**Test**					**Test**					

2024 National RATP: MATHEMATICS GRADE 10 – TERM 4

TERM 4 (52 days)	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Topics	***MEASUREMENT**	**NUMBER PATTERNS**	**REVISE ALGEBRA**	**REVISE TRIGONOMETRY**	**REVISE FUNCTIONS**	**REVISE GEOMETRY AND ANALYTICAL GEOMETRY**	**EXAMINATION**			**ADMIN**	
	1. Revise the volume and surface areas of right-prisms and cylinders. 2. Study the effect on volume and surface area when multiplying any dimension by a constant factor k. 3. Calculate the volume and surface areas of spheres, right pyramids, right cones and combinations of those objects (figures).	Patterns: Investigate number patterns leading to those where there is a constant difference between consecutive terms, and the general term (without using a formula – see content overview) is therefore linear.									
Date completed											
SBA	**Test**										

EXAM	
PAPER 1 100 marks 2 hours	
Algebra	**30**
Number Patterns	**15**
Finance, growth	**10**
Functions and Graphs	**30**
Probability	**15**
PAPER 2 100 marks 2 hours	
Statistics	**15**
Analytical Geometry	**15**
Trigonometry	**40**
Euclidean Geometry & Measurement	**30**

TOTAL NUMBER OF SBA TASKS 7

Term 1 Investigation / Project (15%) and Test (14%)
Term 2 Assignment (15%) and Exam / Control Test (14%)
Term 3 Test (14%) and Test (14%)
Term 4 Test (14%)

Final SBA is 40%
Final Exam is 60%

THE ANSWER SERIES *Your Key to Exam Success*

2024 GRADE 11 MATHS ATP

Jan 2024

2024 National RATP: MATHEMATICS GRADE 11 – TERM 1 (46 days)

* 1 week less than in 2023

TERM 1	WEEK 1 17 – 19 Jan	WEEK 2 22 – 26 Jan	WEEK 3 29 Jan – 2 Feb	WEEK 4 5 – 9 Feb	WEEK 5 12 – 16 Feb	WEEK 6 19 – 23 Feb	WEEK 7 26 Feb – 1 March	WEEK 8 4 – 8 March	WEEK 9 11 – 15 March	WEEK 10 18 – 20 March
Topics	Exponents and surds		Equations and inequalities				*Trigonometry (reduction formulae, trig equations & general solutions)			
Date completed										
SBA	**Investigation or project**					**&**			**Test (content of term 1)**	

2024 National RATP: MATHEMATICS GRADE 11 – TERM 2 (52 days)

TERM 2	WEEK 1 3 – 5 April	WEEK 2 8 – 12 April	WEEK 3 15 – 19 April	WEEK 4 22 – 26 April	WEEK 5 29 April – 3 May	WEEK 6 6 – 10 May	WEEK 7 13 – 17 May	WEEK 8 20 – 24 May	WEEKS 9 , 10 and 11 27 May – 14 June
Topics	Euclidean Geometry				Analytical Geometry		Functions (Straight line, Parabola, Hyperbola)		Examination
Date completed									
SBA	**Assignment**				**&**		**JUNE EXAM / CONTROL TEST**		

2024 National RATP: MATHEMATICS GRADE 11 – TERM 3 (53 days)

TERM 3	WEEK 1 9 – 12 July	WEEK 2 15 – 19 July	WEEK 3 22 – 26 July	WEEK 4 29 July – 2 Aug	WEEK 5 5 – 8 Aug	WEEK 6 12 – 16 Aug	WEEK 7 19 – 23 Aug	WEEK 8 26 – 30 Aug	WEEK 9 2 – 6 Sept	WEEK 10 9 – 13 Sept	WEEK 11 16 – 20 Sept
Topics	Functions (Exponential Graph & Trigonometric Functions)			*Trigonometry (sine, cosine and area rules)		Statistics		*Probability		*Finance, growth and decay	
Date completed											
SBA	**Test**					**Test**					

2024 National RATP: MATHEMATICS GRADE 11 – TERM 4 (52 days)

TERM 4	WEEK 1 1 – 4 Oct	WEEK 2 7 – 11 Oct	WEEK 3 14 – 18 Oct	WEEK 4 21 – 25 Oct	WEEK 5 28 Oct – 1 Nov	WEEK 6 4 – 8 Nov	WEEK 7 11 – 15 Nov	WEEK 8 18 – 22 Nov	WEEK 9 25 – 29 Nov	WEEK 10 2 – 6 Dec	WEEK 11 9 – 11 Dec
Topics	*Number patterns		**Revision of Measurement**	**Revision of Algebra**	**Revision of Trigonometry**	**Revision of Geometry**	**Final Examination**			**Admin**	
Date completed											
SBA	**Test**						**FINAL EXAMINATION**				

TOTAL NUMBER OF SBA TASKS 7

Term 1 Investigation / Project (15%) and Test (14%)
Term 2 Assignment (15%) and Exam / Control Test (14%)
Term 3 Test (14%) and Exam (14%)
Term 4 Test (14%)

Final SBA is 40%
Final Exam is 60%

EXAM	
PAPER 1 150 marks 3 hours	
Algebraic expressions, equations and inequalities	**45**
Number patterns	**25**
Finance, growth and decay	**15**
Functions and graphs	**45**
Probability	**20**
PAPER 2 150 marks 3 hours	
Statistics	**20**
Analytical Geometry	**30**
Trigonometry	**50**
Euclidean Geometry	**50**

2024 National RATP: MATHEMATICS GRADE 11 – TERM 1

* 1 week less than in 2023

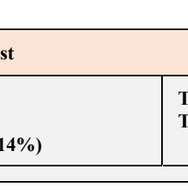
TERM 1	Week 1 17 – 19 Jan	Week 2 22 – 26 Jan	Week 3 29 Jan – 2 Feb	Week 4 5 – 9 Feb	Week 5 12 – 16 Feb	Week 6 19 – 23 Feb	Week 7 26 Feb – 1 March	Week 8 4 – 8 March	Week 9 11 – 15 March	Week 10 18 – 20 March
Topics	**EXPONENTS AND SURDS**		**EQUATIONS AND INEQUALITIES**				***TRIGONOMETRY (REDUCTION FORMULAE, TRIG EQUATIONS & GENERAL SOLUTIONS)**			
	1. Simplify expressions and solve equations using the laws of exponents for rational exponents where, $x^{\frac{p}{q}} = \sqrt[q]{x^p}; x > 0; q > 0$ 2. Add, subtract, multiply and divide simple surds. 3. Solve simple equations involving surds.		1. Complete the square. 2. Solve quadratic equations (by factorisation and by using the quadratic formula). 3. Solve quadratic inequalities in one unknown (interpret solutions graphically.) 4. Equations in two unknowns, one of which is linear and the other quadratic. NB: It is recommended 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. 5. Nature of roots.				1. Derive and use the identities: $\tan\theta = \frac{\sin\theta}{\cos\theta}$, $\theta \neq k.90°$, k an odd integer; and $\sin^2\theta + \cos^2\theta = 1$. 2. Derive and use reduction formulae to simplify the following expressions: 2.1 $\sin(90° \pm \theta)$; $\cos(90° \pm \theta)$; 2.2 $\sin(180° \pm \theta)$; $\cos(180° \pm \theta)$ and $\tan(180° \pm \theta)$; 2.3 $\sin(360° \pm \theta)$; $\cos(360° \pm \theta)$ and $\tan(360° \pm \theta)$; 2.4 $\sin(-\theta)$; $\cos(-\theta)$ and $\tan(-\theta)$. 3. Determine for which values of a variable an identity holds. 4. Determine the general solutions of trigonometric equations. Also, determine solutions in specific intervals.			
Date completed										
SBA	**Investigation or project**						**&**		**Test (content of term 1)**	

2024 National RATP: MATHEMATICS GRADE 11 – TERM 2

TERM 2	Week 1 3 – 5 April	Week 2 8 – 12 April	Week 3 15 – 19 April	Week 4 22 – 26 April	Week 5 29 April – 3 May	Week 6 6 – 10 May	Week 7 13 – 17 May	Week 8 20 – 24 May	Week 9 – 11 27 May – 14 June
Topics	**EUCLIDEAN GEOMETRY**				**ANALYTICAL GEOMETRY**		**FUNCTIONS (STRAIGHT LINE, PARABOLA, HYPERBOLA)**		
	1. 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. 2. Then investigate and prove the theorems of the geometry of circles: • **The line drawn from the centre of a circle perpendicular to a chord bisects the chord. • **The line drawn from the centre of a circle to the midpoint of a chord is perpendicular to 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 circumference of 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. The proof of the Theorems marked with ** are examinable (as per the 2021 Exam Guidelines). Use the above theorems and their converses, where they exist, to solve riders.				1. Revise • distance between the two points • gradient of the line segment connecting the two points (and from that identify parallel and perpendicular lines); and • coordinates of the mid-point of the line segment joining the two points. 2. Derive and apply • the equation of a line through two given points; • the equation of a line through one point and parallel or perpendicular to a given line; and • The inclination (θ) of a line, where, $m = \tan\theta$ is the gradient of the line ($0° \leq \theta \leq 180°$)		1. Revise the effect of the parameters a and q and investigate the effect of p on the graphs of the functions defined by: 1.1 $y = f(x) = a(x+p)^2 + q$ 1.2 $y = f(x) = \frac{a}{x+p} + q$ 1.3 $y = f(x) = a.b^{x+p} + q$ where $b > 0$, $b \neq 1$ 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. 3. Point by point plotting of basic graphs defined by $y = \sin\theta$, $y = \cos\theta$ and $y = \tan\theta$ for $\theta \in [-360°; 360°]$. ***(Trigonometric functions to be continued in Term 3.)***	**June Exam / Control Test** 
Date completed									
SBA	**Assignment & June Exam / Control Test**								

2024 National RATP: MATHEMATICS GRADE 11 – TERM 3

* 1 week less than in 2023

TERM 3	Week 1 9 – 12 July	Week 2 15 – 19 July	Week 3 22 – 26 July	Week 4 29 July – 2 Aug	Week 5 5 – 8 Aug	Week 6 12 – 16 Aug	Week 7 19 – 23 Aug	Week 8 26 – 30 Aug	Week 9 2 – 6 Sept	Week 10 9 – 13 Sept	Week 11 16 – 20 Sept
Topics	**EXPONENTIAL & TRIGONOMETRIC FUNCTIONS**			***TRIGONOMETRY (sine, cosine and area rules)**		**STATISTICS**		*** PROBABILITY**		*** FINANCE, GROWTH AND DECAY**	
	* The Exponential function $(y = a.b^{x+p} + q;\ b > 0$ and $b \neq 1)$ could be done here in Term 3. 4. Investigate the effect of the parameter k on the graphs of the functions defined by: $y = \sin(kx)$, $y = \cos(kx)$ and $y = \tan(kx)$ 5. Investigate the effect of the parameter p on the graphs of the functions defined by: $y = \sin(x + p)$, $y = \cos(x + p)$ and $y = \tan(x + p)$ 6. Draw sketch graphs defined by: $y = a \sin k(x + p) + q$, $y = a \cos k(x + p) + q$ and $y = a \tan k(x + p) + q$ at most two parameters at a time.			1. Prove and apply the sine, cosine and area rules. 2. Solve problems in two dimensions using the sine, cosine and area rules. 		1. Revise measures of central tendency and dispersion in ungrouped and grouped data. 2. Revise Five number summary (maximum, minimum and quartiles) and box and whisker diagram. 3. Revise Histograms 4. Frequency polygons 5. Ogives (cumulative frequency curves) 6. Variance and standard deviation of ungrouped data 7. Symmetric and skewed data 8. Identification of outliers.		1. Revise the use of probability models to compare the relative frequency of events with the theoretical probability. 2. Revise the use of Venn diagrams to solve probability problems, deriving and applying the following for any two events in a sample space S: • Addition rule: $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$; • A and B are mutually exclusive if $P(A \text{ and } B) = 0$; Addition rule for mutually exclusive events A and B is: $P(A \text{ or } B) = P(A) + P(B)$ • A and B are complementary if they are, ➢ mutually exclusive and ➢ $P(A) + P(B) = 1$ Then $P(B) = P(\text{not } A) = 1 - P(A)$ 3. Identify independent events and the product rule for independent events: $P(A \text{ and } B) = P(A) \times P(B)$ 4. The use of Venn diagrams to solve probability problems, deriving and applying formulae for any three events A, B and C in a sample space S. 5. Use tree diagrams for the probability of consecutive or simultaneous events which are not necessarily independent. 6. Use Venn diagrams, Tree diagrams and contingency tables to solve real life problems.		1. Revise the use of the simple and compound growth formulae: $A = P(1 + in)$ and $A = P(1 + i)^n$ to solve problems, including interest, hire purchase, inflation, population growth and other real-life problems. 2. Understand the implication of fluctuating foreign exchange rates (e.g. on the petrol price, imports, exports, overseas travel). 3. Use simple and compound decay formulae: $A = P(1 - in)$ and $A = P(1 - i)^n$ to solve problems (including straight line depreciation and depreciation on a reducing balance). 4. The effect of different periods of compound growth and decay, including nominal and effective interest rates.	
Date completed											
SBA	**Test**							**Test**			

2024 National RATP: MATHEMATICS GRADE 11 – TERM 4

TERM 4	Week 1 1 – 4 Oct	Week 2 7 – 11 Oct	Week 3 14 – 18 Oct	Week 4 21 – 25 Oct	Week 5 28 Oct – 1 Nov	Week 6 4 – 8 Nov	Week 7 11 – 15 Nov	Week 8 18 – 22 Nov	Week 9 25 – 29 Nov	Weeks 10 and 11 2 – 11 **Dec**	EXAM	
Topics	*** NUMBER PATTERNS**		**REVISION OF MEASUREMENT**	**REVISION OF ALGEBRA**	**REVISION OF TRIGONOMETRY**	**REVISION OF GEOMETRY**	**FINAL EXAMINATION**			**ADMIN**	**PAPER 1 150 marks 3 hours**	
	Patterns: Investigate number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic.		1. Revise the volume and surface areas of right-prisms and cylinders. 2. Study the effect on volume and surface areas when multiplying any dimension by a constant factor k. 3. Calculate volume and surface areas of spheres, right prisms, right cones and combination of those objects (figures).								**Algebraic expressions, equations and inequalities** **Number patterns** **Finance, growth and decay** **Functions and graphs** **Probability**	**45** **25** **15** **45** **20**
Date completed											**PAPER 2 150 marks 3 hours**	
SBA	**Test**						**Final Examination**				**Statistics** **Analytical Geometry** **Trigonometry** **Euclidean Geometry**	**20** **30** **50** **50**
	TOTAL NUMBER OF SBA TASKS 7 **Term 1 Investigation / Project (15%) and Test (14%)** **Term 2 Assignment (15%) and Exam / Control Test (14%)**		**Term 3 Test (14 %) and Test (14 %)** **Term 4 Test (14 %)**			**Final SBA is 40%** **Final Exam is 60%**						

THE ANSWER SERIES *Your Key to Exam Success*

2024 GRADE 12 MATHS ATP

Jan 2024

2024 National RATP: MATHEMATICS GRADE 12 – TERM 1 (46 days)

*** 1 week less than in 2023**

TERM 1	**WEEK 1** 17 – 19 Jan	**WEEK 2** 22 – 26 Jan	**WEEK 3** 29 Jan – 2 Feb	**WEEK 4** 5 – 9 Feb	**WEEK 5** 12 – 16 Feb	**WEEK 6** 19 – 23 Feb	**WEEK 7** 26 Feb – 1 March	**WEEK 8** 4 – 8 March	**WEEK 9** 11 – 15 March	**WEEK 10** 18 – 20 March
Topics	Number patterns, sequences and series				Functions: Formal definition; inverses, exponential and logarithmic			Trigonometry		
School days	**18** days				**15** days			**13** days **(+ 3 in Term 2)**		
SBA	Investigation or project				&			Test (content term 1)		

2024 National RATP: MATHEMATICS GRADE 12 – TERM 2 (52 days)

TERM 2	**WEEK 1** 3 – 5 April	**WEEK 2** 8 – 12 April	**WEEK 3** 15 – 19 April	**WEEK 4** 22 – 26 April	**WEEK 5** 29 April – 3 May	**WEEK 6** 6 – 10 May	**WEEK 7** 13 – 17 May	**WEEK 8** 20 – 24 May	**WEEK 9** 27 – 31 May	**WEEK 10** 3 – 7 Jun	**WEEK 11** 10 – 14 June
Topics	Trigonometry	Euclidean Geometry		Analytical Geometry		Differential Calculus including Polynomials					
School days	**3** days	**10** days		**9** days		**15** days			**15** days		
SBA	Assignment								JUNE EXAM / CONTROL TEST		

2024 National RATP: MATHEMATICS GRADE 12 – TERM 3 (53 days)

TERM 3	**WEEK 1** 9 – 12 July	**WEEK 2** 15 – 19 July	**WEEK 3** 22 – 26 July	**WEEK 4** 29 July – 2 Aug	**WEEK 5** 5 – 8 Aug	**WEEK 6** 12 – 16 Aug	**WEEK 7** 19 – 23 Aug	**WEEK 8** 26 – 30 Aug	**WEEK 9** 2 – 6 Sept	**WEEK 10** 9 – 13 Sept	**WEEK 11** 16 – 20 Sept
Topics	Calculus / Optimisation	*Finance, growth and decay		Statistics		Probability/Counting Principles		Revision			
School days	**4** days	**10** days		**9** days		**10** days		**5** days	**15** days		
SBA	Test								TRIAL EXAMS		

2024 National RATP: MATHEMATICS GRADE 12 – TERM 4 (52 days)

TERM 4	**WEEK 1** 1 – 4 Oct	**WEEK 2** 7 – 11 Oct	**WEEK 3** 14 – 18 Oct	**WEEK 4** 21 – 25 Oct	**WEEK 5** 28 Oct – 1 Nov	**WEEK 6** 4 – 8 Nov	**WEEK 7** 11 – 15 Nov	**WEEK 8** 18 – 22 Nov	**WEEK 9** 25 – 29 Nov	**WEEK 10** 2 – 6 Dec	**WEEK 11** 9 – 11 Dec
Topics	Revision				Final Examination						
School days	**19** days				**33** days						

TOTAL NUMBER OF SBA TASKS 6
Term 1 Investigation / Project (15%) and Test (15%)
Term 2 Assignment (15%) and June Exam / Control Test (15%)
Term 3 Test (15%) and Trial (25%)
Term 4 Final Examination

EXAM	
PAPER 1 150 marks 3 hours	
Algebraic expressions, equations and inequalities	25
Number patterns	25
Functions and graphs	35
Finance, growth and decay	15
Differential Calculus	35
Counting Principle and Probability	15
PAPER 2 150 marks 3 hours	
Statistics	20
Analytical Geometry	40
Trigonometry	50
Euclidean Geometry	40

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

2024 National RATP: MATHEMATICS GRADE 12 – TERM 1

TERM 1	17 – 19 Jan	22 – 26 Jan	29 Jan – 2 Feb	5 – 9 Feb	12 – 16 Feb	19 – 23 Feb	26 Feb – 1 March	4 – 8 March	11 – 15 March	18 – 20 March
Topics	**NUMBER PATTERNS, SEQUENCES AND SERIES**				**FUNCTIONS**			**TRIGONOMETRY**		
	1. Patterns: Revise number patterns leading to those where there is a constant second difference between consecutive terms, and the general term is therefore quadratic. 2. Number patterns, including arithmetic and geometric sequences and series 3. Sigma notation 4. Derivation and application of the formulae for the sum of arithmetic and geometric series: 4.1 $S_n = \frac{n}{2}[2a + (n-1)d]$; $S_n = \frac{n}{2}(a + l)$ 4.2 $S_n = \frac{a(r^n - 1)}{r - 1}$; $(r \neq 1)$; and 4.3 $S_\infty = \frac{a}{1 - r}$; $(-1 < r < 1)$				1. Definition of a *function*. 2. General concept of the *inverse of a function* and how the domain of the function may need to be restricted (in order to obtain a one-to-one function) to ensure that the inverse is a function. 3. Determine and sketch graphs of the inverses of the functions defined by $y = ax + q$; $y = ax^2$ $y = b^x$; $b > 0$; $b \neq 1$ Focus on the following characteristics: domain and range, intercepts with the axes, turning points, minima, maxima, asymptotes (horizontal and vertical), shape and symmetry, average gradient (average rate of change), intervals on which the function increases/decreases. 4. Revision of the exponential function and the exponential laws and graph of the function defined by $y = b^x$ where $b > 0$ and $b \neq 1$ 5. Understand the definition of a logarithm: $y = \log_b x \Leftrightarrow x = b^y$ where $b > 0$ and $b \neq 1$ 6. The graph of the function, $y = \log_b x$ for both the cases $0 < b < 1$ and $b > 1$.			1. Compound angle identities: $\sin(\alpha \pm \beta) = \sin\alpha\cos\beta \pm \cos\alpha\sin\beta$ $\cos(\alpha \pm \beta) = \cos\alpha\cos\beta \mp \sin\alpha\sin\beta$ $\sin 2\alpha = 2\sin\alpha\cos\alpha$ $\cos 2\alpha = \cos^2\alpha - \sin^2\alpha$ $= 2\cos^2\alpha - 1$ $= 1 - 2\sin^2\alpha$ Prove that $\cos(\alpha - \beta) = \cos\alpha\cos\beta + \sin\alpha\sin\beta$ and derive the other identities from this formula. 2. Revise the proof of the sine, cosine and area rules. ***3. SHIFTED TO TERM 2:*** Solve problems in two and three dimensions applying the sine, cosine and area rules		
Date completed										
SBA	Investigation or project				&			Test (content term 1)		

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

2024 National RATP: MATHEMATICS GRADE 12 – TERM 2

TERM 2	3 – 5 April	8 – 12 April	15 – 19 April	22 – 26 April	29 April – 3 May	6 – 10 May	13 – 17 May	20 – 24 May	27 – 31 May	3 – 7 June	10 – 14 June
Topics	**TRIGONOMETRY**	**EUCLIDEAN GEOMETRY**		**ANALYTICAL GEOMETRY**		**DIFFERENTIAL CALCULUS INCLUDING POLYNOMIALS**			JUNE EXAM / CONTROL TEST		
	CONTINUED FROM TERM 1: 3. Solve problems in two and three dimensions applying the sine, cosine and area rules.	1. Revise earlier work on the necessary and sufficient conditions for polygons to be similar. 2. Prove (accepting results established in earlier grades): • **that a line drawn parallel to one side of a triangle divides the other two sides proportionally (and the Midpoint Theorem as a special case of the converse of this theorem); • **that equiangular triangles are similar; • that triangles with sides in proportion are similar; and • the Pythagorean Theorem by similar triangles The proofs of theorems labelled with ** are examinable. *(See the 2021 Exam Guidelines)*		1. Revise the following including grade 10 concepts: • the equation of a line through two given points; • the equation of a line through one point and parallel or perpendicular to a given line; and • The inclination (θ) of a line, where $m = \tan\theta$ is the gradient of the line ($0° \le \theta \le 180°$) 2. Apply the equation $(x-a)^2 + (y-b)^2 = r^2$ that defines a circle with radius r and centre $(a; b)$. 3. Determine the equation of a tangent to a given circle.		1. Factorise third-degree polynomials. Apply the Remainder and Factor Theorems to polynomials of degree at most 3 (no proofs required). 2. An intuitive understanding of the limit concept, in the context of approximating the rate of change or gradient of a function at a point. 3. Use limits to define the derivative of a function f at any x: $f'(x) = \lim_{h\to 0} \frac{f(x+h)-f(x)}{h}$ Generalise to find the derivative of f at any point x in the domain of f, i.e., define the derivative function $f'(x)$ of the function $f(x)$. Understand intuitively that $f'(a)$ is the gradient of the tangent to the graph of f at the point with x-coordinate a. 4. Using the definition (first principle), determine the derivative, $f'(x)$ where a, b and c are constants: 4.1 $f(x) = ax^2 + bx + c$; 4.2 $f(x) = ax^3$; 4.3 $f(x) = \frac{a}{x}$ for $x \neq 0$ 4.4 $f(x) = c$. 5. Use the formula, $\frac{d}{dx}(ax^n) = anx^{n-1}$ (for any real number n) together with the rules 5.1 $\frac{d}{dx}[f(x) \pm g(x)] = \frac{d}{dx}[f(x)] \pm \frac{d}{dx}[g(x)]$ and 5.2 $\frac{d}{dx}[kf(x)] = k\frac{d}{dx}[f(x)]$, ($k$ a constant)] 6. Determine equations of tangents to graphs of functions. 7. Introduce the second derivative of $f(x)$: $f''(x) = \frac{d}{dx}(f'(x))$ and how it determines the concavity of a function. 8. Sketch graphs of cubic polynomial functions using differentiation to determine the coordinates of stationary points, and points of inflection (where concavity changes). Also, determine the x-intercepts of the graph using the factor theorem and other techniques. 9. Optimisation: shifted to Term 3				
Date completed											
SBA	Assignment								JUNE EXAM / CONTROL TEST		

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

2024 National RATP: MATHEMATICS GRADE 12 – TERM 3

TERM 3	9 – 12 July	15 – 19 July	22 – 26 July	29 July – 2 Aug	5 – 8 Aug	12 – 16 Aug	19 – 23 Aug	26 – 30 Aug	2 – 6 Sept	9 – 13 Sept	16 – 20 Sept
Topics	**DIFFERENTIAL CALCULUS INCLUDING POLYNOMIALS**	***FINANCE, GROWTH AND DECAY**		**STATISTICS**		**PROBABILITY / COUNTING PRINCIPLES**		**REVISION**	**TRIAL EXAMINATION**		
	9. SHIFTED FROM TERM 2: Solve practical problems concerning optimisation and rate of change, including calculus of motion.	1. Revise and use simple and compound growth and decay formulae: $A = P(1 \pm in)$ and $A = P(1 \pm i)^n$ to solve problems (including straight line depreciation and depreciation on a reducing balance). 2. Solve problems involving present value and future value annuities. 3. Make use of logarithms to calculate the value of n, the time period, in the equations $A = P(1+i)^n$ *or* $A = P(1-i)^n$. 4. Critically analyse investment and loan options and make informed decisions as to best option(s) (including pyramid)		1. Revise: • Histograms • Frequency polygons • Ogives (cumulative frequency curves) • Variance and standard deviation of ungrouped data • Symmetric and skewed data • Identification of outliers. 2. Use statistical summaries, scatterplots, regression (in particular the least squares regression line) and correlation to analyse and make meaningful comments on the context associated with given bivariate data, including interpolation, extrapolation and discussions on skewness.		1. Revise: • the identity: $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ • the addition rule for mutually exclusive events: $P(A \text{ or } B) = P(A) + P(B)$ • the complementary rule: $P(\text{not } A) = 1 - P(A)$ • identifying independent events and, • the product rule for independent events: $P(A \text{ and } B) = P(A) \times P(B)$ • the use of Venn diagrams to solve probability problems, deriving and applying formulae for any three events A, B and C in a sample space S. • the use of tree diagrams for the probability of consecutive or simultaneous events which are not necessarily independent. 2. Apply the fundamental counting principle to solve probability problems. 3. Probability problems using Venn diagrams, tree diagrams, two-way contingency tables and other techniques (like the Fundamental Counting Principle) to solve probability problems (where events are not necessarily independent).				
Date completed											
SBA	Test								TRIAL EXAMINATION		

*** 1 week less than in 2023**

2024 National RATP: MATHEMATICS GRADE 12 – TERM 4

TERM 4	1 – 4 Oct	7 – 11 Oct	14 – 18 Oct	21 – 25 Oct	28 Oct – 1 Nov	4 – 8 Nov	11 – 15 Nov	18 – 22 Nov	25 – 29 Nov	2 – 6 Dec	9 – 11 Dec
Topics	**REVISION**				**FINAL EXAMINATION**						

TOTAL NUMBER OF SBA TASKS 6

Term 1 Investigation / Project (15%) and Test (15%)
Term 2 Assignment (15%), June Exam / Control Test (15%)
Term 3 Test (15%) and Trial (25%)
Term 4 Final Examination

EXAM	
PAPER 1 150 marks 3 hours	Marks
Algebraic expressions, equations and inequalities	25
Number patterns	25
Functions and graphs	35
Finance, growth and decay	15
Differential Calculus	35
Counting Principle and Probability	15
PAPER 2 150 marks 3 hours	Marks
Statistics	20
Analytical Geometry	40
Trigonometry	50
Euclidean Geometry	40

THE ANSWER SERIES *Your Key to Exam Success*

2024 FET MATHS ATPs

Jan 2024

TERM 1: 17/1 – 20/3 (10 weeks/46 days)

Grade 10	Weeks	School days	Dates
Algebraic expressions	4	18	17/1
Exponents, equations & inequalities	*3	15	12/2
Trigonometry (#1) (trig definitions in rt-$\angle^d$ Δ^s & for $0^o \le \theta \le 360^o$; reciprocals; special $\angle^s$: 0^o to 360^o; equations)	3	13	4/3

Grade 11	Weeks	School days	Dates
Exponents & Surds	2	8	17/1
Equations & Inequalities	4	20	29/1
Trigonometry (#1) (reduction formulae, equations & general solutions)	*4	18	26/2

Grade 12	Weeks	School days	Dates
Number Patterns, Sequences & Series	4	18	17/1
Functions (formal definition; inverses, exponential and logarithmic functions)	3	15	12/2
Trigonometry (#1) (revision & compd $\angle^s$) +1 in Term 2 +3 in Term 2	3	13	4/3
Algebra			

TERM 2: 3/4 – 14/6 (11 weeks/52 days)

Grade 10	Weeks	School days	Dates
Euclidean Geometry	*3	13	3/4
Analytical Geometry	2	9	22/4
Functions (str line, parab, hyp)	3	15	6/5
JUNE EXAM / CONTROL TEST	3	15	27/5

Grade 11	Weeks	School days	Dates
Euclidean Geometry	4	18	3/4
Analytical Geometry	2	9	29/4
Functions (str line, parab, hyp)	2	10	13/5
JUNE EXAM / CONTROL TEST	3	15	27/5

Grade 12	Weeks	School days	Dates
Trigonometry (#2) (2D/3D)	1	3	3/4
Euclidean Geometry	2	10	8/4
Analytical Geometry	2	9	22/4
Differential Calculus, incl. Polynomials	3	15	6/5
JUNE EXAM / CONTROL TEST	3	15	27/5

TERM 3: 9/7 – 20/9 (11 weeks/53 days)

Grade 10	Weeks	School days	Dates
Functions (exponential & trigonometric)	3	14	9/7
Trigonometry (#2) (2D)	2	9	29/7
Statistics	*2	10	12/8
Probability	*2	10	26/8
Finance and growth	*2	10	9/9

Grade 11	Weeks	School days	Dates
Functions (exponential & trigonometric)	3	14	9/7
Trigonometry (#2) (sine, cosine and area rules)	*2	9	29/7
Statistics	2	10	12/8
Probability	*2	10	26/8
Finance, Growth & Decay	*2	10	9/9

Grade 12	Weeks	School days	Dates
Calculus: Optimisation	1	4	9/7
Finance, growth & decay, & Annuities	*2	10	15/7
Statistics (regression & correlation)	2	9	29/7
Counting & Probability	2	10	12/8
Revision	1	5	26/8
TRIAL EXAMS	3	15	2/9

TERM 4: 1/10 – 11/12 (11 weeks/52 days)

Grade 10	Weeks	School days	Dates
Measurement	*1	4	1/10
Number Patterns	1	5	7/10
Revision of Algebra	1	5	14/10
Revision of Trigonometry	1	5	21/10
Revision of Functions	1	5	28/10
Revision of Geometry and Analytical Geometry	1	5	4/11
FINAL EXAMS	3	15	11/11
Admin	2	8	2/12

Grade 11	Weeks	School days	Dates
Number Patterns	*2	9	1/10
Revision of Measurement	1	5	14/10
Revision of Algebra	1	5	21/10
Revision of Trigonometry	1	5	28/10
Revision of Geometry	1	5	4/11
FINAL EXAMS	3	15	11/11
Admin	2	8	2/12

Grade 12	Weeks	School days	Dates
Revision	4	19	1/10
EXTERNAL EXAMS	7	33	28/10

*1 week less than in 2023

This is purely a suggested guide, having consulted widely, adjusted for 2024, and, based on the 2023/2024 DBE ATPs.
Compiled by TAS