

MATHEMATICS GRADES 10-12

SHORT TERM CHANGES

The following changes in Mathematics should be implemented as from 2019:

- All learners in grades 10-12 should be provided with formula sheet similar to the one given in Grade 12 for all examinations.
- Assignments are generally extended pieces of work completed **individually** at **school under control supervision with access to resources**.
- At most one project or **investigation** should be administered in a year.
- It is compulsory to administer one assignment in each grade (10-12). The option of offering an assignment or a test in grades 10 - 12 is discontinued. All 7 tasks should be administered as indicated in the table below.
- The table below also reflects the new the weightings for assignment and project or **investigation**.

Learners are expected to have seven (7) formal assessment tasks for their school-based assessment. The number of tasks and their weighting are listed below:

		GRADE 10		GRADE 11		GRADE 12	
		TASKS	WEIGHT (%)	TASKS	WEIGHT (%)	TASKS	WEIGHT (%)
School-based Assessment	Term 1	Test Project /Investigation	10 15	Test Project/Investigation	10 15	Test Project /Investigation Assignment	10 15 15
	Term 2	Assignment Mid-year Examination	10 30	Assignment Mid-year Examination	10 30	Test Mid-year Examination	10 15
	Term 3	Test Test	10 10	Test Test	10 10	Test Trial Examination	10 25
	Term 4	Test	10	Test	10		
School-based Assessment mark			100		100		100
School-based Assessment mark (as % of promotion mark)			25%		25%		25%
End-of-year examinations			75%		75%		
Promotion mark			100%		100%		

Note:

- Investigation/project should be done in term **ONE**. Only **ONE** project/investigation should be set per year.
- Tests should be at least ONE hour long and count at least 50 marks.
- For purposes of term reporting, the project or investigation must contribute 25% of term 1 marks while the test marks contribute 75% of the term 1 marks in grades 10 and 11. The combination (25% and 75%) of the marks must appear in the learner's report. For grade 12, project/investigation must contribute 15%, assignment 10% and test 75%. In term 2, test must contribute 25% and mid-year examination 75%.
- No calculators with programmable functions, facilities or symbolic facilities (for example, to factorise $a^2 - b^2 = (a - b)(a + b)$, or to find roots of equations) will be allowed. Calculators should only be used to perform standard numerical computations and to verify calculations by hand.

- The table below reflects the new weightings for Trigonometry, Euclidean Geometry and Measurement in grade 12.

Mark distribution for Mathematics NCS end-of-year papers: Grades 10 - 12			
PAPER 1 : Grades 12: bookwork: maximum 6 marks			
Description	Grade 10	Grade 11	Grade. 12
Algebra and equations (and inequalities)	30 ± 3	45 ± 3	25 ± 3
Patterns and sequences	15 ± 3	20 ± 3	25 ± 3
Finance, growth and decay	10 ± 3	15 ± 3	15 ± 3
Functions and graphs	30 ± 3	45 ± 3	35 ± 3
Differential Calculus			35 ± 3
Probability	15 ± 3	25 ± 3	15 ± 3
TOTAL	100	150	150
PAPER 2 : Grades 11 and 12: theorems and/or trigonometric proofs: maximum 12 marks			
Description	Grade 10	Grade 11	Grade 12
Statistics	15 ± 3	20 ± 3	20 ± 3
Analytical Geometry	15 ± 3	30 ± 3	40 ± 3
Trigonometry	50 ± 3	60 ± 3	50 ± 3
Euclidean Geometry and measurement	20 ± 3	40 ± 3	40 ± 3
TOTAL	100	150	150
Note:			
<ul style="list-style-type: none"> • Modelling as a process should be included in all papers, thus contextual questions can be set on any topic. • Questions will not necessarily be compartmentalised in sections, as this table indicates. Various topics can be integrated in the same question. 			

- The following typos were corrected in the Curriculum and Assessment Policy Statement (CAPS):

Investigations are set to develop the skills of systematic **analysis of** special cases with a view to observing general trends, making conjectures and proving them. To avoid having to assess work which is copied without understanding, it is recommended that while the initial investigation can be done at

home, the final write up should be done in class, under supervision, without access to any notes.

Investigations are marked using rubrics **and/ or marking memorandum**. Rubrics can be specific to the task, or generic, listing the number of marks awarded for each skill:

- 40% for communicating individual ideas and discoveries, assuming the reader has not come across the text before. The appropriate use of diagrams and tables will enhance the investigation.
 - 35% for the effective consideration of special cases;
 - 20% for generalising, making conjectures and proving or disproving these conjectures; and
 - 5% for presentation: neatness and visual impact.
-
- The weighting of cognitive levels have not changed.
Knowledge 20%, Routine Procedures 35%, Complex Procedures 30% and Problem Solving 15%.
 - Clarification to the teaching of nature of roots, learners must be able to determine the nature of roots and interpret delta/discriminant.
 - Take note that the examinations in terms 2 and 3 must consist of two three-hour papers with the same or very similar structure to the final NSC papers (from page 49 in CAPS).
 - Identification of outliers should be done in the context of a scatter plot must be done in grade 12 as scatter plot is done in grade 12 not in grade 11.
 - Annual Teaching Plan for grade 12 has slightly changed resulting in Euclidean Geometry placed in the first term:

Annual Teaching Plan for grade 12

MATHEMATICS: GRADE 10 PACE SETTER													
1	TERM 1												
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11		
Topics	Algebraic expressions			Exponents		Number patterns	Equations and inequalities		Trigonometry				
Assessment	Investigation or project								Test				
Date completed													
2	TERM 2												
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11		
Topics	Functions				Trigonometric functions	Euclidean geometry							
Assessment	Assignment							MID-YEAR EXAMINATION					
Date completed													
3	TERM 3												
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10			
Topics	Analytical geometry		Finance and growth		Statistics			Trigonometry		Euclidean geometry	Measurement		
Assessment	Test						Test						
Date completed													
4	TERM 4										Paper 1 : 2 hours	Paper 2: 2 hours	
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10			
Topics	Probability		Revision						Admin	Algebraic expressions and equations (and inequalities) exponents	30	Euclidean geometry	20
Assessment			Test			Examinations				Number Patterns	10	Analytical geometry	15
										Functions and graphs	30	Trigonometry and measurement	50
										Finance, growth and decay	15	Statistics	15
										Probability	15		
Date completed										Total marks	100	Total marks	100

MATHEMATICS: GRADE 11 PACE SETTER																
1	TERM 1															
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6		WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11				
Topics	Exponents and surds			Equations and inequalities				Number patterns		Analytical Geometry						
Assessment	Investigation or project								Test							
Date completed																
2	TERM 2															
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5		WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11				
Topics	Functions				Euclidean Geometry				Measurement							
Assessment	Assignment								MID-YEAR EXAMINATION							
Date completed																
3	TERM 3															
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6		WEEK 7	WEEK 8	WEEK 9	WEEK 10					
Topics	Trigonometry (reduction formulae, graphs, equations)				Trigonometry (sine, cosine and area rules)				Finance, growth and decay		Probability					
Assessment	Test					Test										
Date completed																
4	TERM 4										Paper 1: 3 hours		Paper 2: 3 hours			
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	Algebraic expressions, equations and inequalities		45	Euclidean geometry		40
Topics	Statistics			Revision			FINAL EXAMINATION			Admin	Number patterns		25	Analytical geometry		30
Assessment	Test										Functions and graphs		45	Trigonometry and measurement		60
											Finance, growth and decay		15	Statistics		20
											Probability		20			
Date completed											Total marks		150	Total marks		150

	MATHEMATICS: GRADE 12 PACE SETTER										
1	TERM 1										
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11

Topics	Number patterns, sequences and series			Functions: Formal definition; inverses			Functions: exponential and logarithmic			Euclidean Geometry			Trigonometry		
Assessment	Assignment					Investigation or project					Test				
Date completed															
2	TERM 2														
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11				
Topics	Trigonometry		Functions: polynomials		Differential Calculus				Analytical Geometry						
Assessment	Test								MID-YEAR EXAMINATION						
Date completed															
3	TERM 3														
Weeks	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10					
Topics	Finance, growth and decay		Statistics		Counting and Probability			Revision							
Assessment	Test									TRIAL EXAMINATION					
Date completed															
4	TERM 4										Paper 1 : 3 hours		Paper 2 : 3 hours		
	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	Algebraic expressions and equations (and inequalities)	25	Euclidean Geometry	40	
	Revision			FINAL EXAMINATION						Admin	Algebraic expressions and equations (and inequalities)	25	Analytical Geometry	40	
											Number patterns	35	Trigonometry and measurement	50	
											Functions and graphs	35	Trigonometry and measurement	50	
											Finance, growth and decay	15	Statistics	20	
											Differential Calculus	35			
											Counting and probability	15			
											Total marks	150	Total marks	150	