

MATHEMATICS HIGHER GRADE**A. MEANS OF ASSESSMENT**

Paper I	3 hours – set out of	[200]		
Paper II	3 hours – set out of	[200]		
Total		[400]	adjusted to be out of	[300]
Continuous Assessment (CASS)				[100]

400 marks**B. REQUIREMENTS**

Included with the papers is a formula sheet.

PAPER I ALGEBRA AND DIFFERENTIATED CALCULUS [200]

The mark allocation for this paper is as follows:

Algebra	±75%	[±150]
Differential Calculus	±25%	[±50]

PAPER II GEOMETRY AND TRIGONOMETRY [200]

Where diagrams are supplied on a separate answer sheet the working details must be shown in the answer book and the diagram sheet must be handed in with the answer book.

- | | | |
|-----|---|-----------------|
| (a) | One general question of a miscellaneous nature covering two or more sections of the whole syllabus may be asked. (5% - 10%) | [±10] |
| (b) | Euclidean Geometry | 30% (±5%) [±65] |
| (c) | Analytical Geometry | 25% (±5%) [±50] |
| (d) | Trigonometry | 40% (±5%) [±80] |

C. CONTINUOUS ASSESSMENT (CASS) - PORTFOLIO [100]

Teachers will be required to assess candidates' work throughout the year and submit a mark to the IEB, which will arrange for moderation of this assessment.

See the following pages (30a/2 – 30a/3) for further details.

CONTINUAL ASSESSMENT (CASS) FOR MATHEMATICS HG

Minimum Requirements for CASS

School based assessment (SBA) or CASS comprises 25% of the total assessment for the senior certificate.

Table 1 Percentage and mark allocations for CASS and the external examination

	Percentage	HG	
		Maximum mark	Submit out of (Maximum)
External Examination	75	400	300
CASS	25	*	100
TOTAL	100		400

* The maximum number of marks for the CASS component will depend on each teacher.

The requirements for the school-based component of the senior certificate assessment are summarised in Table 2.

Table 2 A Summary of the Continuous Assessment (CASS) components for Mathematics HG

Components	Description	Minimum requirements	Suggestions for the CASS programme	Weighting
Alternate forms of assessment	Shorter Items (less than 1 hour) Journals Orals Correction Items Homework / Classwork Other ...	4 shorter items (each 5 marks)		10%
	Longer Items (more than 1 hour) Projects Investigations Olympiads Tutorial	2 longer items (each 30 marks)	Attempt the longer items during the last two terms of grade 11 and the first term of grade 12.	30%
Tests	Class test These need not be moderated or standardised.	4 class tests spread over the 2nd half of the grade 11 year and the grade 12 year The class tests should be used formatively. Pupils can select their best efforts.	Class tests Begin these in grade 11. This will ensure the pupils have a good opportunity to select their best tests.	Class tests = 10%
	Formal test The tests should be moderated (at least internally) or standardised.	2 formal tests taking place in different terms. (HG – 50 marks & SG – 35 marks)	Formal tests 1 – last term grade 11 1 – first term grade 12	Formal tests = 20 %
Examinations	Examinations must reflect the format and standard of the IEB exam	2 exams	Prelim / Trial exam Paper I – 3 hours Paper II – 3 hours	30%

- No more than 60% of the CASS component should be based on the content covered by any one of the two final question papers. (For e.g. up to a maximum of 60% of the CASS can be based on Geometry and Trigonometry, the content in paper II. 40% would then be based on the Algebra, the content of paper I, and vice versa.)
- For a more detailed description of these components see the resource document “Components of Continuous Assessment for Mathematics, Grade 12”:

Candidate’s portfolio

- Each candidate must submit a portfolio of his / her own work in accordance with the minimum requirements as set out in Table 2 A “Summary of the Continuous Assessment (CASS) components for Mathematics HG.”
- A candidate may present the portfolio in a folder, file or collected together in a neatly bound compilation as decided by the school or teacher.
- A “*Summary of assessment: Mathematics portfolio HG*” (see page 30a/5) sheet must appear at the front of each candidate’s portfolio.
- All the items in the portfolio must be headed and numbered as on the “*Summary of assessment: Mathematics portfolio HG*”, for the moderation process.
- All work must be marked (or controlled) by the teacher before it can be placed in the portfolio.
- The candidate completes the form “*Summary of assessment: Mathematics portfolio HG*” (see page 30a/5). However the teacher takes responsibility for the accuracy of the marks entered on the Summary of Marks table. The teacher ensures that the candidate correctly completes the form.
- The different components of the assessment should be clearly separated from each other using dividers of some sort.

Teacher’s portfolio

- The teacher’s portfolio, neatly bound in an A-4 file, must be available when moderation of candidates’ portfolios takes place.
- The purpose of the teacher’s portfolio is to provide a record of the implementation of CASS.
- In order to provide a record of the implementation of CASS the teacher’s portfolio must comprise of the following:
 - ◇ All assessment ‘task’ sheets (e.g. tests, project instruction sheets)
 - ◇ Model answers and memoranda for tasks, tests and examinations
 - ◇ The “*Summary of candidates’ marks*” (see page 30a/6) schedule
- When two or more teachers teach the subject, each teacher must hand in his / her own portfolio.

Mathematics Formula Sheet (HG and SG)
Wiskunde Formuleblad (HG en SG)

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$T_n = a + (n-1)d \quad S_n = \frac{n}{2}[a + l] \quad S_n = \frac{n}{2}[2a + (n-1)d]$$

$$T_n = ar^{n-1} \quad S_n = \frac{a(1-r^n)}{1-r} \quad S_n = \frac{a(r^n-1)}{r-1} \quad (r \neq 1) \quad S_\infty = \frac{a}{1-r}$$

$$A = P\left(1 + \frac{r}{100}\right)^n \quad A = P\left(1 - \frac{r}{100}\right)^n$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$y = mx + c$$

$$y - y_1 = m(x - x_1)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \tan \theta$$

$$\left(\frac{x_1 + x_2}{2} ; \frac{y_1 + y_2}{2} \right)$$

$$x^2 + y^2 = r^2$$

$$(x - p)^2 + (y - q)^2 = r^2$$

In $\triangle ABC$:

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of } \triangle ABC = \frac{1}{2}ab \sin C$$

Summary of Assessment Mathematics portfolio HG

(To be filled in by the candidate, controlled by the teacher included as the 1st Page of the portfolio)

Centre Number

Candidate's Examination number

	Date of submission	Description of task	Informal Assessment	Tests	Examinations	Mark
eg	31-01-02	Correction item – exponents and logs	X			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

SUMMARY OF MARKS

		Mark				Total/max	Max.	Final
Alternate Assessment	Shorter						10	
	Longer						30	
Tests	Class						10	
	Formal						20	
Examinations	Paper 1						15	
	Paper 2						15	
FINAL CASS MARK / 100							100	

An example of a form that gives a *Summary of candidates' marks*

Date	Exam No.	Name	Alternate forms of assessment		Class Tests	Formal Tests	Examinations	Average
			Shorter items	Longer				
Maximum								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								