



HOËRSKOOL JOHAN JURGENS

MATHEMATICS MARKING GUIDELINE

GRADE 10: CYCLE TEST

FEB 2026 TERM 1

TIME: 1 HOUR

TOTAL MARKS: 50

EXAMINER: Z CRONJE

MODERATOR: M BOTHA

NOTE:

- If a candidate answered a question TWICE, mark only the first attempt.
- Consistent accuracy applies in ALL aspects of the marking memorandum.
- Assuming values/answers to solve a problem is unacceptable

QUESTION 1

1.1.1	Q✓	✓answer	(1)
1.1.2	Q ¹ ✓	✓answer	(1)
1.1.3	Q, Z✓	✓answer	(1)
1.1.4	N, Q, Z✓	✓answer	(1)
1.2	$\sqrt{64} < \sqrt{65} < \sqrt{81}$ $8✓ < \sqrt{65} < 9✓$	8✓ and 9✓	(2)
1.3	$a + b = 4 \dots (1)$ $a = 2 + b \dots (2)✓$ $2 + b + b = 4$ $2b = 4 - 2$ $b = 1✓$ $a = 2 + 1$ $a = 3✓$ $\therefore 3^2 - 1^2 = 8✓$	✓equation ✓value of b ✓value of a ✓answer	(4)
			[10]

QUESTION 2

2.1.1	$(a + b)(a^2 - 2ab + b^2)$ $= a^3 - 2a^2b + ab^2 + a^2b - 2ab^2 + b^3 \checkmark$ $= a^3 - a^2b - ab^2 + b^3 \checkmark$	\checkmark expansion $\checkmark a^3 - a^2b - ab^2 + b^3$	(2)
2.1.2	$\left(n - \frac{1}{n}\right)\left(n^2 + 1 - \frac{1}{n^2}\right)$ $= n^3 + n - \frac{1}{n} \checkmark - n - \frac{1}{n} + \frac{1}{n^3} \checkmark$ $= n^3 - \frac{2}{n} + \frac{1}{n^3} \checkmark$	$\checkmark n^3 + n - \frac{1}{n}$ $\checkmark -n - \frac{1}{n} + \frac{1}{n^3}$ $\checkmark n^3 - \frac{2}{n} + \frac{1}{n^3}$	(3)
2.2.1	$6ab - 9ac - 14b + 21c$ $= 3a(2b - 3c) - 7(2b - 3c) \checkmark$ $= (2b - 3c)(3a - 7) \checkmark$	\checkmark group factors $\checkmark (2b - 3c)(3a - 7)$	(2)
2.2.2	$t^3 - 9t$ $= t(t^2 - 9) \checkmark$ $= t(t - 3)(t + 3) \checkmark$	$\checkmark t(t^2 - 9)$ $\checkmark (t - 3)(t + 3)$	(2)
2.2.3	$x^2 - 5x - 24$ $= (x - 8)\checkmark(x + 3)\checkmark$	$\checkmark (x - 8)$ $\checkmark (x + 3)$	(2)
2.2.4	$(x^2 - x - 12)^2 - (x^2 + 7x + 12)^2$ $= (x - 4)^2(x + 3)^2 - (x + 4)^2(x + 3)^2 \checkmark$ $= (x + 3)^2[(x - 4)^2 - (x + 4)^2] \checkmark$ $= (x + 3)^2(x^2 - 8x + 16 - x^2 - 8x - 16)$ $= -(x + 3)^2\checkmark(16x)\checkmark$	\checkmark factors \checkmark simplification $\checkmark\checkmark -(x + 3)^2(16x)$	(4)
			[15]

QUESTION 3

3.1.1	$\left(\frac{3a^2}{a^{-2}b^3}\right)^{-2}$ $= \left(\frac{a^{-2}b^3}{3a^2}\right)^2 \checkmark$ $= \left(\frac{b^3}{3a^4}\right)^2$ $= \frac{b^6}{9a^8} \checkmark$	$\checkmark \left(\frac{a^{-2}b^3}{3a^2}\right)^2$ $\checkmark \frac{b^6}{9a^8}$	(2)
3.1.2	$\frac{2^{2n} \cdot 3^{-n} \cdot 4^n}{27^{-n} \cdot 8^n}$ $\frac{2^{2n} \checkmark \cdot 3^{-n} \cdot 2^{2n}}{3^{-3n} \cdot 2^{3n} \checkmark}$ $= 2^n \cdot 3^{2n} \checkmark$	$\checkmark 2^{2n}$ $\checkmark 3^{-3n} \cdot 2^{3n}$ $\checkmark 2^n \cdot 3^{2n}$	(3)
3.1.3	$\frac{5^{x+1} - 5^x}{2 \cdot 5^x}$ $\frac{5^x(5 - 1)\checkmark}{5^x(2)}$ $= \frac{4}{2}$ $= 2 \checkmark$	$\checkmark 5^x(5 - 1)$ $\checkmark 2$	(2)

3.2.1	$3^{2x-2} = 64$ $3^{2x-2} = 3^4$ $2x - 2 = 4$ ✓ $2x = 6$ $\therefore x = 3$ ✓	$\checkmark 2x - 2 = 4$ $\checkmark x = 3$	(2)
3.2.2	$5x^3 - 135 = 0$ $5x^3 = 135$ $x^3 = 27$ ✓ $\therefore x = 3$ ✓	$\checkmark x^3 = 27$ $\checkmark x = 3$	(2)
3.2.3	$2^{2x} - 4 \cdot 2^x + 3 = 0$ Let $k = 2^x$ $k^2 - 4k + 3 = 0$ ✓ $(k - 3)(k - 1) = 0$ ✓ $k = 3$ or $k = 1$ ✓ $2^x = 1$ $\therefore x = 0$ ✓	\checkmark standard form $\checkmark (k - 3)(k - 1) = 0$ \checkmark k-values $\checkmark x = 0$	(4)
			[15]

QUESTION 4

4.1	$(2x + 3)(x - 2) = 3x$ $2x^2 - 4x + 3x - 6 - 3x = 0$ $2x^2 - 4x - 6 = 0$ $x^2 - 2x - 3 = 0$ ✓ $(x - 3)(x + 1) = 0$ ✓ $\therefore x = 3$ or $x = -1$ ✓	\checkmark standard form \checkmark factors \checkmark both values	(3)
4.2	$\sqrt{x + 1} = 3$ $(\sqrt{x + 1})^2 = 3^2$ ✓ $x + 1 = 9$ $\therefore x = 8$ ✓	\checkmark squaring \checkmark x value	(2)
4.3	$-6 \leq 2x + 3 < 2$ $-9 \leq 2x < -1$ ✓ $-\frac{9}{2} \leq x < -\frac{1}{2}$ ✓	\checkmark simplification \checkmark x values	(2)
4.4	$\frac{2x - 4}{5} = \frac{x - 1}{3}$ $3(2x - 4) = 5(x - 1)$ ✓ $6x - 12 = 5x - 5$ ✓ $\therefore x = 7$ ✓	\checkmark multiplication \checkmark simplification \checkmark x value	(3)
			[10]
TOTAL:			[50]

GRADE 10 MATHEMATICS
TERM 1 CYCLE TEST MARKING GUIDELINE

TAXONOMY LEVELS					
GRADE 10					
MATHEMATICS					
CONTROL TEST - TERM 1 - 2026					
MARKS: 50					
QUESTION	KNOWLEDGE	ROUTINE PROCEDURES	COMPLEX PROCEDURES	PROBLEM SOLVING	TOTAL
DESIRED %	20%	35%	30%	15%	100%
1.1.1	1				1
1.1.2	1				1
1.1.3		1			1
1.1.4		1			1
1.2		2			2
1.1.3			4		4
2.1.1	2				2
2.1.2	3				3
2.2.1	2				2
2.2.2	2				2
2.2.3	2				2
2.2.4				3	3
					0
3.1.1		2			2
3.1.2		3			3
3.1.3		2			2
3.2.1		2			2
3.2.2		2			2
3.2.3				4	4
					0
4.1		3			3
4.2			2		2
4.3			2		2
4.4			3		3
Total	13	18	11	7	50
Actual %	26,0	36,0	22,0	14,0	100,0
Desired %	20%	35%	30%	15%	100