



PROVINCIAL EXAMINATION/ *PROVINSIALE EKSAMEN*

NOVEMBER 2021

GRADE 10/*GRAAD 10*

MARKING GUIDELINES/*NASIENRIGLYNE*

MATHEMATICS (PAPER 1)/*WISKUNDE (VRAESTEL 1)*

8 pages/*bladsye*

**MARKING GUIDELINES/
NASIENRIGLYNE**
**MATHEMATICS (PAPER 1)/
WISKUNDE (VRAESTEL 1)
GRADE 10/GRAAD 10**
NOTE:

- If a candidate answers a QUESTION TWICE, mark only the FIRST attempt.
- If a candidate crossed out an answer and did not redo it, mark the crossed-out answer.
- Consistent accuracy applies to ALL aspects of the marking guidelines.
- Assuming values/answers in order to solve a problem is unacceptable.
- No spaces between the QUESTIONS in the memo.

LET WEL:

- As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.
- As 'n kandidaat 'n antwoord van 'n vraag doodtrek en nie oordoen nie, sien die doodgetrekte poging na.
- Volgehoue akkuraatheid word in ALLE aspekte van die nasienriglyne toegepas.
- Aannames van waardes/antwoorde om 'n probleem op te los, word NIE toegelaat nie.
- Geen spasies tussen die ANTWOORDE op die memorandum nie.

QUESTION/VRAAG 1			
1.1.1	$x^2 + x - 42$ $= (x + 7)(x - 6)$	✓ $x + 7$ ✓ $x - 6$	(2)
1.1.2	$2ab^2 - b^3 + b^2 - 2ab$ $= 2ab(b - 1) - b^2(b - 1)$ $= (b - 1)(2ab - b^2)$ $= b(b - 1)(2a - b)$	$b^2(2a - b) + b(b - 2a)$ $= b^2(2a - b) - b(2a - b)$ $= (2a - b)(b^2 - b)$ $= b(2a - b)(b - 1)$	✓✓ grouping/groepeer ✓ factorise/faktoriseer ✓ factorise/faktoriseer
1.1.3	$3 - \frac{27}{x^2}$ $= 3\left(1 - \frac{9}{x^2}\right)$ $= 3\left(1 + \frac{3}{x}\right)\left(1 - \frac{3}{x}\right)$	✓ 3 as a common factor/ 3 as gemeenskaplike faktor ✓ factorise/faktoriseer	(2)
1.2.1	$8a^3 + b^3$	✓ $8a^3$ ✓ $+b^3$	(2)
1.2.2	$\frac{1}{(2^3 x^{12})^{\frac{1}{3}}} \times \frac{2}{x^4} - \frac{1}{x^8}$ $= \frac{1}{2x^4} \times \frac{2}{x^4} - \frac{1}{x^8}$ or/of $2^{-1}x^{-4} \times 2x^{-4} - x^{-8}$ $= \frac{1}{x^8} - \frac{1}{x^8}$ $= 0$	✓ $\frac{1}{2x^4}$ ✓ $\frac{1}{x^8}$ ✓ 0	(3)

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1.2.3	$\frac{7^{2n+2} - 3 \cdot 7^{2n+1}}{49^n \cdot 4}$ $= \frac{7^{2n}(7^2 - 3 \cdot 7)}{7^{2n} \cdot 4}$ $= \frac{28}{4}$ $= 7$	✓ factorise numerator/ faktorisier teller ✓ denominator 7^{2n} / noemer 7^{2n} ✓ 7	(3)
1.3	$6^2 \cdot 5^3 \cdot 4^4 \cdot 3^5$ $= 3^2 \cdot 2^2 \cdot 5^3 \cdot 2^8 \cdot 3^5$ $= 3^7 \cdot 2^7 \cdot 2^3 \cdot 5^3$ $= 6^7 \cdot 10^3$ $= 1000x$	✓ break up each number/breek elke getal op ✓ $6^7 10^3$ ✓ 1 000x	(3)
			[19]

QUESTION/VRAAG 2			
2.1.1	$x = 4$	✓ $x = 4$	(1)
2.1.2	$\frac{x}{x-3} - \frac{x}{2-x} = \frac{2x^2 - 25}{x^2 - 5x + 6}$ $\frac{x}{x-3} + \frac{x}{x-2} = \frac{2x^2 - 25}{(x-3)(x-2)}$ $x(x-2) + x(x-3) = 2x^2 - 25$ $x^2 - 2x + x^2 - 3x = 2x^2 - 25$ $-5x = -25$ $x = 5$	Restrict/Beperk $x \neq 3, 2$ ✓ $+\frac{x}{(x-2)}$ ✓ $(x-3)(x-2)$ ✓ restrictions/beperkings ✓ $x(x-2) + x(x-3) = 2x^2 - 25$ ✓ $x = 5$	(5)
2.2.1	$0 < 3 - \frac{x}{2} < 2$ $-3 < -\frac{x}{2} < -1$ $6 > x > 2$ $2 < x < 6$	✓ $-3 < -\frac{x}{2} < -1$ ✓ $x > 2$ ✓ $x < 6$	(3)
2.2.2	Answer will vary, accept any integer NOT equal to 3, 4, 5 Antwoorde kan verskil, aanvaar enige heelgetal NIE gelyk aan 3, 4, 5.	✓	(1)

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2.3	$2x - 4y = 6$ $\therefore x - 2y = 3$ $x = 3 + 2y$ $3x - 5y = 10$ $3(3 + 2y) - 5y = 10$ $9 + 6y - 5y = 10$ $y = 1$ $x = 3 + 2(1)$ $x = 5$	$\checkmark x - 2y = 3$ $\checkmark x = 3 + 2y$ $\checkmark$ substitution/ <i>vervang</i> $\checkmark y = 1$ $\checkmark x = 5$	(5)
			[15]

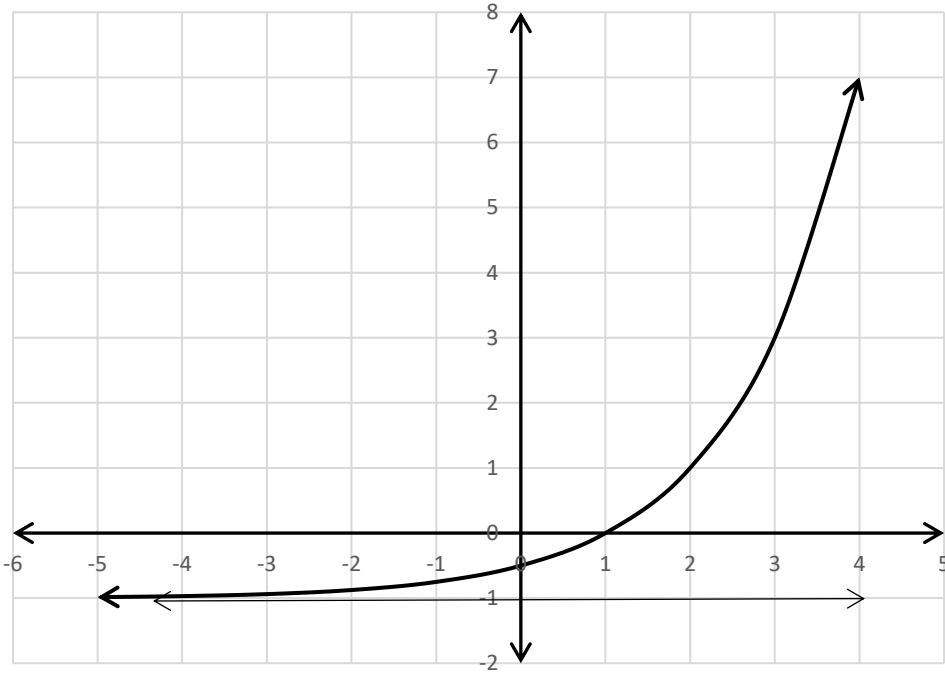
QUESTION/VRAAG 3

3.1.1	$\frac{-12}{17}, \frac{-15}{21}$	$\checkmark \frac{-12}{17}$ $\checkmark \frac{-15}{21}$	(2)
3.1.2	$T_n = \frac{-3n}{4n+1}$	$\checkmark \checkmark -3n$ $\checkmark \checkmark 4n + 1$	(4)
3.1.3	$T_{50} = \frac{-3n}{4n+1}$ $= \frac{-3(50)}{4(50)+1}$ $= \frac{-150}{201}$	$\checkmark$ substitution into formula/ <i>vervang in formule</i> $\checkmark$ answer/ <i>antwoord</i>	(2)
3.2.1	20	$\checkmark$ answer/ <i>antwoord</i>	(1)
3.2.2	$T_n = 3n + 5$	$\checkmark 3n$ $\checkmark +5$	(2)
3.2.3	$T_n = 3n + 5$ $125 = 3r + 5$ $3r = 120$ $r = 40$	$\checkmark$ substitution into formula/ <i>vervang in formule</i> $\checkmark$ answer/ <i>antwoord</i>	(2)
3.3	$6x + 4 - (4x - 3) = 3x - 9 - (6x + 4)$ $6x + 4 - 4x + 3 = 3x - 9 - 6x - 4$ $2x + 7 = -3x - 13$ $5x = -20$ $x = -4$	$\checkmark$ equation/ <i>vergelyking</i> $\checkmark$ answer/ <i>antwoord</i>	(2)
			[15]

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QUESTION/VRAAG 4			
4.1.1	$x \in \square ; x \neq 0$	✓ $x \in \square ; x \neq 0$	(1)
4.1.2	$[1; \infty)$ or $x \geq 1$	✓ correct brackets/ korrekte hakies ✓ values/waardes	(2)
4.2	$(2; 0)$ $0 = \frac{b}{2} + 1$ $b = -2$	✓ substitute $(2 ; 0)$ / vervang $(2 ; 0)$ ✓ $b = -2$	(2)
4.3	$f(-1) = \frac{-2}{-1} + 1$ $= 3$ $\therefore$ point of intersection is/snypunt $(-1; 3)$ / and turning point/draaipunt $(0; 1)$ $3 = a(-1)^2 + 1$ $3 = a + 1$ $a = 2$ $g(x) = 2x^2 + 1$	✓ $f(-1)$ ✓ substitute $(-1 ; 3)$ / vervang $(-1 ; 3)$ ✓ substitute q /vervang q ✓ equation/vergelyking	(4)
4.4	$y = -x + 1$	✓ $-x$ ✓ $+1$	(2)
4.5.1	$x < 0$ or $x \in (-\infty; 0)$	✓ $x < 0$	(1)
4.5.2	$-1 < x < 0$ or/of $x \in (-1; 0)$	✓ values/waardes ✓ inequality/brackets/ ongelykheid/hakies	(2)
4.6	$g(3) = 2(3)^2 + 1$ $g(3) = 19$ When/Indien $y = 19$	✓ substitute $x = 3$ / vervang $x = 3$ ✓ $y = 19$	(2)
4.7	$k(x) = -2x^2 + 2$	✓ $-2x^2$ ✓ $+2$	(2)
			[18]

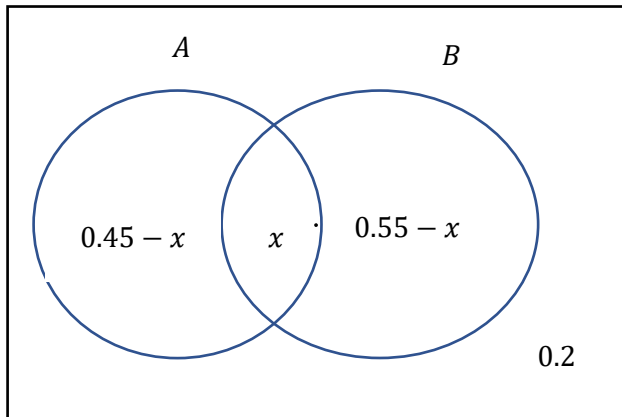
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QUESTION/VRAAG 5			
5.1	$y = -1$	✓ $y = -1$	(1)
5.2.1	let/stel $y = 0$ $\frac{1}{2} \cdot 2^x - 1 = 0$ $\frac{1}{2} \cdot 2^x = 1$ $2^x = 2$ $x = 1$	✓ substitute $y = 0$ / vervang $y = 0$ ✓ $x = 1$	(2)
5.2.2	let/stel $x = 0$ $y = \frac{1}{2} \cdot 2^0 - 1$ $y = -\frac{1}{2}$	✓ substitute $x = 0$ / Vervang $x = 0$ ✓ $y = -\frac{1}{2}$	(2)
5.3	 ✓ $x = 1$ x – intercepts/x – afsnit ✓ $y = -\frac{1}{2}$ y -intercept/y -afsnit ✓ $y = -1$ asymptote/asimptote		(3)
5.4	$y = -\frac{1}{2} \cdot 2^x - 1$	✓ $-\frac{1}{2} \cdot 2^x$ ✓ -1	(2)
			[10]

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QUESTION/VRAAG 6			
6.1	$2150 \times 3 \times 4 = 25\,800$ Rials/Riyal $25\,800 \times 4.012778$ $= R\,103\,529,67$	✓ total cost for family/ <i>totale koste vir die familie</i> ✓ $\times 4.012778$ ✓ answer/antwoord	(3)
6.2	$A = 50\,000(1 + 0.13 \times 3)$ $= R69\,500$ They will NOT cover the cost/Hulle sal NIE die koste dek nie.	✓ substitute/vervang ✓ answer/antwoord ✓ statement/stelling	(3)
6.3	They would like a strong rand because they will pay less for their tickets and accommodation. / <i>Hulle sal 'n sterk Rand verkies aangesien die kaartjie- en akkomoderingskoste minder sal kos.</i>	✓ strong rand/sterk rand ✓ motivation/motivering	(2)
6.4	$A = P(1 + in)$ $2150 = P[1 + (0.005)(4)]$ $2150 = P(1.02)$ $P = 2107,84$	✓ substitution/vervanging ✓ simplify/vereenvoudig ✓ answer/antwoord	(3)
			[11]

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QUESTION/VRAAG 7

7.1.1			✓ $0.45 - x$ ✓ $0.55 - x$ ✓ x ✓ 0.2	(4)
7.1.2	(a)	$0.45 - x + x + 0.55 - x = 0.8$ $1 - x = 0.8$ $x = 0.2$	✓ equation/vergelijking ✓ answer/antwoord	(2)
7.1.2	(b)	$P(A \text{ or/of (not/nie } (B))$ $= 0.25 + 0.2 + 0.2$ $= 0.65$	✓ equation/vergelijking ✓ answer/antwoord	(2)
7.2	$P(A \cup B) = P(A) + P(B) - P(A \cap B)$ $\frac{68}{80} = \frac{30}{80} + \frac{45}{80} - \frac{P(A \cap B)}{80}$ $\therefore P(A \cap B) = 30 + 45 - 68$ $= 7$		✓ correct formula/ korrekte formule ✓ substitution into formula/ vervanging in formule ✓ simplification/ vereenvoudiging ✓ answer/antwoord	(4)
				[12]
	TOTAL/TOTAAL			100