

PROVINCIAL EXAMINATION
PROVINSIALE EKSAMEN
JUNE/JUNIE 2023
GRADE/GRAAD 10
MARKING GUIDELINES/
NASIENRIGLYNE

MATHEMATICS/WISKUNDE (PAPER/VRAESTEL 1)

6 pages/bladsye

NOTE/LET WEL:

- If a candidate answers a question TWICE, mark only the FIRST attempt.
As 'n kandidaat 'n vraag TWEE keer beantwoord, merk slegs die EERSTE poging.
- If a candidate crossed out an answer and did not redo it, mark the crossed-out
'n kandidaat 'n antwoord deurgehaal het en dit nie oorgedoen het nie, merk die deurgehaalde antwoord.
- Consistent accuracy (CA) applies to ALL aspects of the marking guidelines.
Konsekwente akkuraatheid (CA) is van toepassing op ALLE aspekte van die nasienriglyne.
- Assuming values/answers in order to solve a problem is unacceptable.
Om waardes/antwoorde te neem om 'n probleem op te los is onaanvaarbaar.

QUESTION/VRAAG 1

1.1	$-\sqrt{81} < -\sqrt{69} < -\sqrt{64} \checkmark$ $-9 < \sqrt{69} < -8 \checkmark$	$\checkmark -\sqrt{81}$ and $-\sqrt{69}$ in correct order/ $-\sqrt{81}$ en $-\sqrt{69}$ in korrekte volgorde $\checkmark$ between -9 and -8 /tussen -9 en -8 NO MARK for answer only/ GEEN PUNT vir slegs antwoord nie	(2)
1.2	Let/Stel $0,\dot{9} = x \checkmark$ $10x = 9,\dot{9}$ $10x - x = 9,\dot{9} - 0,\dot{9} \checkmark$ $9x = 9 \checkmark$ $x = 1$	$\checkmark$ Let/Stel $0,\dot{9} = x$ $\checkmark$ correct subtraction/korrekte aftrek $\checkmark$ Simplification/Vereenvoudiging NO MARK for answer/ GEEN PUNT vir antwoord nie	(3)
			[5]

QUESTION/VRAAG 2

2.1	$3x^2 + 9x - 2xy - 6y$ $= 3x(x + 3) - 2y(x + 3) \checkmark$ $= (3x - 2y)(x + 3) \checkmark$	$\checkmark$ grouping and factorising/groepering en faktoriserings $\checkmark$ common factors/gemeenskaplike faktore	(2)
2.2	2.2.1 $\frac{m^2 - 64}{m^2 + 8m} \div \frac{m - 8}{m}$ $= \frac{(m - 8)(m + 8)}{m(m + 8)} \checkmark \checkmark \times \frac{m}{(m - 8)} \checkmark$ $= 1 \checkmark$	$\checkmark (m - 8)(m + 8)$ factorising numerator/ faktoriseer teller $\checkmark m(m + 8)$ factorising denominator/ faktoriseer noemer $\checkmark$ inverting/resiprook $\frac{m}{(m - 8)}$ $\checkmark$ answer = 1/antwoord = 1	(4)

2.2.2	$\frac{2^{n-1} \cdot 8^{n+1}}{16^n}$ $= \frac{2^{n-1} \cdot 2^{3n+3} \checkmark}{2^{4n} \checkmark}$ $= 2^{n-1+3n+3-4n}$ $= 2^2$ $= 4 \checkmark$	$\checkmark 2^{3n+3}$ $\checkmark 2^{4n}$ $\checkmark$ answer/antwoord	(3)
			[9]

QUESTION/VRAAG 3

3.1	$(a+1)(a^2+2a-3) = a(a^2+3a)$ $a^3+3a^2-a-3 = a^3+3a^2 \checkmark \checkmark$ $-a-3=0$ $a=-3 \checkmark$	$\checkmark a^3+3a^2-a-3$ (correct multiplication of LHS/korrekte vermenigvuldiging van LK) $\checkmark a^3+3a^2$ (correct multiplication of RHS/korrekte vermenigvuldiging van RK) $\checkmark$ answer/answer	(3)
3.2	$2x^2+x-3=0$ $(2x+3)(x-1) \checkmark$ $x=-\frac{3}{2}$ or/of $x=1 \checkmark$	$\checkmark$ factors/faktore $\checkmark$ both answers/beide antwoorde	(2)
3.3	$3 \leq 2x-1 < 7$ $4 \leq 2x < 8 \checkmark$ $2 \leq x < 4 \checkmark$	$\checkmark$ Add 1 to each side/Tel 1 beide kante op $\checkmark$ CA Divide by 2/Deel deur 2	(2)

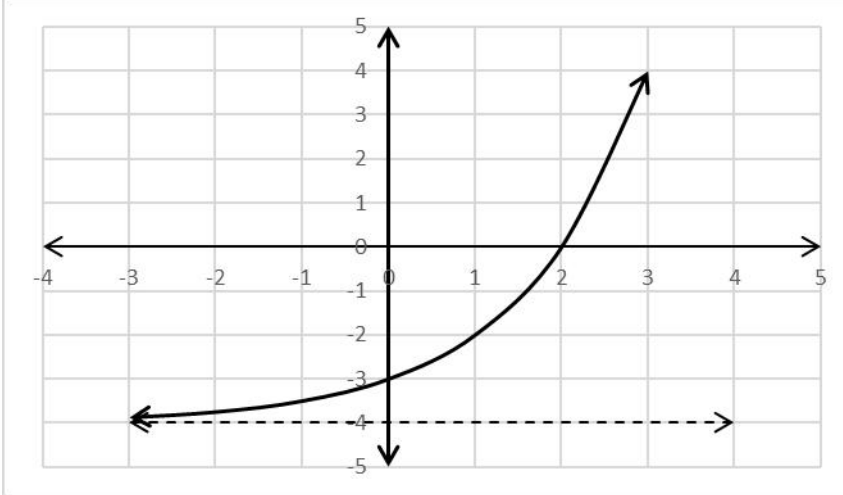
3.4	$3^{x+y} = 27^2$ $2^y = 4^{x+1}$ $x + y = 6$ ✓ $y = 2x + 2$ ✓ $x + 2x + 2 = 6$ $x = \frac{4}{3}$ ✓ $y = 2\left(\frac{4}{3}\right) + 2$ $y = \frac{14}{3}$ ✓	✓ equation 1/vergeliking 1 ✓ equation 2/vergeliking 2 ✓ $x = \frac{4}{3}$ ✓ $y = \frac{14}{3}$ OR/OF $4\frac{2}{3}$	(4)
			[11]

QUESTION/VRAAG 4

4.1	4.1.1	$x \in \mathbb{R}; x \neq 0$	✓ $x \in \mathbb{R}$ ✓ $x \neq 0$	(2)
	4.1.2	$y \in [-2; \infty)$ OR/OF $y \geq -2$	✓ values/waardes ✓ notation ONLY if values are correct/notasie SLEGS as waardes korrek is	(2)
	4.1.3	$y = 1\frac{1}{2}$	✓ Answer/Antwoord	(1)
4.2	x -int, let $y = 0/x$ -afsnit, stel $y = 0$ $2x^2 - 2 = 0$ $2x^2 = 2$ $x = \pm 1$ $AB = 2$ units		✓ $y = 0$ ✓ BOTH x -values / BEIDE x -waardes ✓ $AB = 2$	(3)

4.3	Subst/ <i>Vervang</i> (−2 ; 6)			
	$6 = -\frac{k}{-2} + \frac{3}{2}$ $12 = k + 3$ $k = 9$ $g(x) = \frac{9}{x} + 1\frac{1}{2}$		✓ substitute/ <i>vervang</i> (−2;6) ✓ simplify/ <i>vereenvoudig</i> NO MARK FOR $k = 9$/ GEEN PUNT VIR $k = 9$	(2)
4.4	$y = x + 1\frac{1}{2}$		✓ x ✓ + 1,5	(2)
4.5	4.5.1	$-2 < x < 0$ OR/OF $x \in (-2 ; 0)$	✓ values/ <i>waardes</i> ✓ notation ONLY if values are correct/ <i>notasie SLEGS as waardes korrek is</i>	(2)
	4.5.2	$x > 0$	✓ Answer/ <i>Antwoord</i>	(1)
4.6	Reflection about the y-axis and translated 5 units down <i>Refleksie oor die y-as en transleer 5 eenhede afwaarts</i> OR/OF Reflection about the x-axis and translate 2 units down <i>Refleksie oor die x-as en transleer 2 eenhede afwaarts</i>		✓ reflection about the y-axis/ <i>Refleksie oor die y-as</i> ✓ translate 5 units down/ <i>transleer 5 eenhede afwaarts</i> OR/OF ✓ reflection about the x-axis/ <i>Refleksie oor die x-as</i> ✓ translate 2 units down/ <i>transleer 2 eenhede afwaarts</i>	(2)
				[17]

QUESTION/VRAAG 5

5.1	x -int let $y = 0$ / x -afsnit, stel $y = 0$ $2^x - 4 = 0$ $2^x = 4$ $2^x = 2^2$ $x = 2$	$\checkmark y = 0$ $\checkmark x = 2$	(2)
5.2	y -int let $x = 0$ / y -afsnit, stel $x = 0$ $y = 2^0 - 4$ $y = 1 - 4$ $y = -3$	$\checkmark y = -3$	(1)
5.3		$\checkmark$ x and y -intercepts/ x en y -afsnitte $\checkmark$ asymptote/ asimptoot $\checkmark$ ordered pair (1;-2) OR (3;4) getallepaar (1;-2) OF (3;4)	(3)
5.4	(0 ; -3)	$\checkmark$ x -coordinate/ x -koördinaat $\checkmark$ y -coordinate/ y -koördinaat	(2)
			[8]
TOTAL/TOTAAL:			[50]