GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

PROVINSIALE EKSAMEN

JUNE/*JUNIE* 2023

GRADE/*GRAAD* 10

MARKING GUIDELINES/
NASIENRIGLYNE

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

EXEMPLAR

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

QUESTION/*VRAAG* 2

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

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

QUESTION/*VRAAG* 3

3.1	$(a+1)(a^2+2a-3) = a(a^2+3a)$ $a^3+3a^2-a-3 = a^3+3a^2$ ✓✓ $-a-3=0$ $a=-3$ ✓	✓ a^3+3a^2-a-3 (correct multiplication of LHS/*korrekte vermenigvuldiging van LK)* ✓ a^3+3a^2 (correct multiplication of RHS/ *korrekte vermenigvuldiging van RK)* ✓ answer/*answer*	(3)
3.2	$2x^2+x-3=0$ $(2x+3)(x-1)$ ✓ $x=-\frac{3}{2}$ or/*of* $x=1$ ✓	✓ factors/*faktore* ✓ both answers/*beide antwoorde*	(2)
3.3	$3 \leq 2x+1 < 9$ $2 \leq 2x < 8$ ✓ $1 \leq x < 4$ ✓	✓ Add 1 to each side/*Tel 1 beide kante op* ✓ CA Divide by 2/*Deel deur 2*	(2)

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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/*vergelyking 1* ✓ equation 2/*vergelyking 2* ✓ $x = \frac{4}{3}$ ✓ $y = \frac{14}{3}$ **OR/OF** $4\frac{2}{3}$	(4)
			[11]

QUESTION/*VRAAG* 4

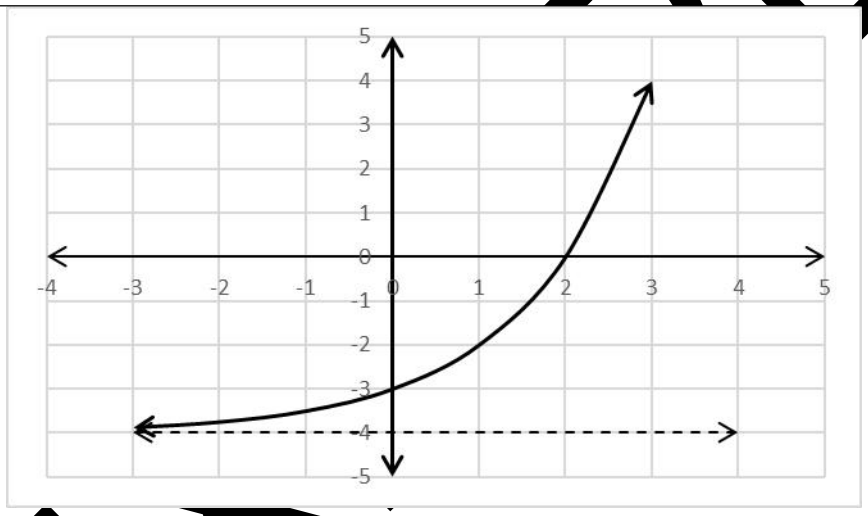
4.1	4.1.1	$x \in \mathbb{R}$; $x \neq 0$	✓ $x \in \mathbb{R}$ ✓ $x \neq 0$	(2)
	4.1.2	$y \in [-2 ; \infty)$ **OR/*OF*** $y \geq -2$	✓ values/*waardes* ✓ notation ONLY if values are correct/*notasie SLEGS as waardes korrek is*	(2)
	4.1.3	$y = 1\frac{1}{2}$	✓ Answer/*Antwoord*	(1)
4.2	*x*-int, let y =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

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

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QUESTION/*VRAAG* 5

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

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