



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS

PROVINCIAL EXAMINATION
PROVINSIALE EKSAMEN

NOVEMBER 2020

GRADE/GRAAD 10

MATHEMATICS PAPER 1
WISKUNDE VRAESTEL 1

MARKING GUIDELINES/NASIENRIGLYNE

MARKS/PUNTE: 50

7 pages/bladsye

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out an attempt of a question and has not redone the question, mark the crossed out version.
- Consistent accuracy applies in ALL aspects of the marking memorandum. Stop marking at the second calculation error.
- Assuming answers/values in order to solve a problem is NOT acceptable.

OPMERKING:

- *As 'n kandidaat 'n vraag twee maal beantwoord, merk slegs die EERSTE poging.*
- *As 'n kandidaat 'n poging van 'n vraag doodgetrek het, en die vraag nie oorgedoen het nie, merk die deurgehaalde weergawe.*
- *Konsekwente akkuraatheid is van toepassing op ALLE aspekte van die nasienmemorandum. Hou op nasien by die tweede berekeningsfout.*
- *Veronderstelling van antwoorde/waardes om 'n probleem op te los, is NIE aanvaarbaar NIE.*

QUESTION/VRAAG 1

1.1	$x = -5$	✓ answer/antwoord (1)
1.2	$x = 15$	✓ answer/antwoord (1)
1.3	$x = 11$	✓ answer/antwoord (1)
		[3]

QUESTION/VRAAG 2

2.1	$\frac{x^2 + x - 6}{3x^2 - 12x} \times \frac{x^2 - 16}{x^3 - 2x^2} \times \frac{1}{x + 4}$ $= \frac{(x + 3)(x - 2)}{3x(x - 4)} \times \frac{(x + 4)(x - 4)}{x^2(x - 2)} \times \frac{1}{x + 4}$ $= \frac{x + 3}{3x^3}$	✓ $(x + 3)(x - 2)$ ✓ $(x + 4)(x - 4)$ ✓ $3x(x - 4)$ ✓ $x^2(x - 2)$ ✓ answer/antwoord (5)
2.2	$\frac{6^{2-a} \cdot 12^a}{2^{a+1}}$ $= \frac{(2 \cdot 3)^{2-a} \cdot (3 \cdot 2^2)^a}{2^{a+1}}$ $= \frac{2^{2-a} \cdot 3^{2-a} \cdot 3^a \cdot 2^{2a}}{2^{a+1}}$ $= 2^{2-a+2a-a-1} \cdot 3^{2-a+a}$ $= 2^1 \cdot 3^2$ $= 18$	✓ $2^{2-a+2a-a-1}$ ✓ 3^{2-a+a} ✓ $2^1 \cdot 3^2$ ✓ answer/antwoord (4)

2.3	$(a + b)^2$ $= a^2 + 2ab + b^2$ $= a^2 + b^2 + 2ab$ $= 8ab + 2ab$ $= 10ab$	$\checkmark a^2 + 2ab + b^2$ $\checkmark$ rearrangement /herrangskikking $\checkmark$ answer/antwoord (3)
		[12]

QUESTION/VRAAG 3

3.1	$64p^3 - \frac{1}{27}$ $= \left(4p - \frac{1}{3}\right) \left(16p^2 + \frac{4}{3}p + \frac{1}{9}\right)$	$\checkmark \left(4p - \frac{1}{3}\right)$ $\checkmark \left(16p^2 + \frac{4}{3}p + \frac{1}{9}\right)$ (2)
3.2	$24ky^3 - 6ky - 24y + 96y^3$ $= 6ky(4y^2 - 1) - 24y(1 - 4y^2)$ $= 6ky(4y^2 - 1) + 24y(4y^2 - 1)$ $= (6ky + 24y)(4y^2 - 1)$ $= 6y(k + 4)(2y + 1)(2y - 1)$	$\checkmark 6ky(4y^2 - 1) - 24y(1 - 4y^2)$ $\checkmark + 24y(4y^2 - 1)$ $\checkmark (6ky + 24y)(4y^2 - 1)$ $\checkmark 6y(k + 4)(2y + 1)(2y - 1)$ (4)
		[6]

QUESTION/VRAAG 4

4.1	$\left(\frac{1}{3}\right)^{3x+3} = 729$ $3^{-(3x+3)} = 3^6$ $-3x - 3 = 6$ $-3x = 6 + 3$ $\therefore x = -3$	$\checkmark 3^{-(3x+3)} = 3^6$ $\checkmark -3x - 3 = 6$ $\checkmark x = -3$ (3)
4.2	$-4 \leq \frac{1-x}{3} < 3$ $-4 \times 3 \leq 1 - x < 3 \times 3$ $-12 \leq 1 - x < 9$ $-12 - 1 \leq -x < 9 - 1$ $-13 \leq x < 8$ $\therefore -8 < x \leq 13$ $x \in (-8; 13]$	$\checkmark -12 \leq 1 - x < 9$ $\checkmark -13 \leq x < 8$ $\checkmark -8 < x \leq 13$ $\checkmark$ Interval notation/ Intervalnotasie (4)
4.3	number of children/aantal kinders: x Adults/volwassenes : $150 - x$ $\therefore 6x + 10(150 - x) = R1100$ $6x + 1500 - 10x = R1100$ $-4x = 1100 - 1500$ $\therefore x = 100$ $\therefore 100$ children/kinders	$\checkmark 6x + 10(150 - x)$ $\checkmark = R1100$ $\checkmark$ simplifying/ vereenvoudiging $\checkmark$ answer/antwoord (4)
		[11]

5.1	$T_n = dn + c$ For/Vir $n = 1$ $-3 = 4(1) + c$ $\therefore c = -7$ $T_n = -3 + 4n - 4$ $\therefore T_n = 4n - 7$ OR/OF $T_n = 4n - 7$ answer only/slegs antwoord	$\checkmark c = -7$ $\checkmark 4n - 7$ OR/OF $\checkmark 4n$ $\checkmark -7$
5.1.2	$T_{38} = 4(38) - 7$ $T_{38} = 145$	$\checkmark T_{38} = 145$

QUESTION/VRAAG 6

6.1	$y = x + 2$ $y = 1 + 2$ $FG = 3$ units/eenhede $y = 3x^2 - 12$ $y = 3(1)^2 - 12$ $FH = 9$ units/eenhede $GH = FG + FH$ $GH = 12$ units/eenhede	$\checkmark FG = 3$ units/eenhede $\checkmark FH = 9$ units/eenhede $\checkmark GH = 12$ units/eenhede (3)
6.2.1	$x + 2 = 3x^2 - 12$ $3x^2 - x - 14 = 0$ $(3x - 7)(x + 2) = 0$ $x = \frac{7}{3}$ and/en $x = -2$ $y = x + 2$ $y = \frac{7}{3} + 2$ $= \frac{13}{3}$ $E = (\frac{7}{3}; \frac{13}{3})$	$\checkmark x + 2 = 3x^2 - 12$ $\checkmark$ standard form/ standaardvorm $\checkmark$ factors/faktore $\checkmark$ both/beide $\checkmark$ substitute/vervang $\frac{7}{3}$ $\checkmark (\frac{7}{3}; \frac{13}{3})$ (5)
6.2.2	asymptote/asimptoot $y = 2$ and/en point/punt $(1; 4)$ $y = a^x + q$ $4 = a^1 + 2$ $4 - 2 = a^1$ $\therefore a = 2$ $\therefore y = 2^x + 2$	$\checkmark$ Asymptote/Asimptoot $y = 2$ $\checkmark 4 = a^1 + 2$ $\checkmark a = 2$ (3)
6.2.3	$y = -3x^2 + 12$	$\checkmark$ correct answer/korrekte antwoord (2)
6.3	$f(x) = 3x^2 - 12$ $x \leq -2$ or/of $x \geq 2$	$\checkmark x \leq -2$ $\checkmark x \geq 2$ (2)
		[15]
TOTAL/TOTAAL 50		