



**GAUTENG DEPARTMENT OF EDUCATION /
GAUTENGSE DEPARTEMENT VAN ONDERWYS**

**PROVINCIAL EXAMINATION /
PROVINSIALE EKSAMEN**

**JUNE 2019 /
JUNIE 2019**

**GRADE 10 /
GRAAD 10**

**MARKING GUIDELINE
NASIENRIGLYNE**

**MATHEMATICS
WISKUNDE**

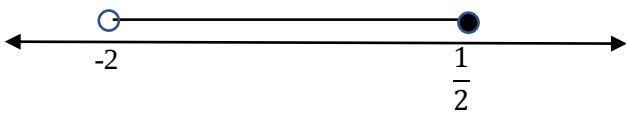
**(PAPER 1) /
(VRAESTEL 1)**

TIME / TYD: 60 minutes / minute

TOTAL / TOTAAL: 50

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QUESTION 1 / VRAAG 1		
1.1.1	$(5x + 1)(2x^2 - 3x - 1)$ $= 10x^3 - 15x^2 - 5x + 2x^2 - 3x - 1$ $= 10x^3 - 13x^2 - 8x - 1$	✓ simplify / vereenvoudig ✓ first two terms / eerste twee terme ✓ last two terms / laaste twee terme (3)
1.1.2	$\frac{9^{x+1} \cdot 5^{x+2}}{45^{x+1}}$ $= \frac{3^{2x+2} \cdot 5^{x+2}}{3^{2x+2} \cdot 5^{x+1}}$ $= 5$ OR / OF $\frac{9^{x+1} \cdot 5^{x+2}}{45^{x+1}}$ $= 3^{2x+2-2x-2} \cdot 5^{x+2-x-1}$ $= 5$	✓ 3^{2x+2} ✓ $3^{2x+2} \cdot 5^{x+1}$ ✓ 5 OR / OF ✓ $3^{2x+2-2x-2}$ ✓ $5^{x+2-x-1}$ ✓ 5 (3)
1.2.1	$2x^2 + 3x - 5$ $= (2x + 5)(x - 1)$	✓ $(2x + 5)$ ✓ $(x - 1)$ (2)
1.2.2	$-3(-3x^4y)^2 - (-3x^2y^2)^3 + 12x^2 - 12y^4$ $= -27x^8y^2 + 27x^6y^6 + 12x^2 - 12y^4$ $= -3[9x^6y^2(x^2 - y^4) - 4(x^2 - y^4)]$ $= -3(x - y^2)(x + y^2)(3x^3y - 2)(3x^3y + 2)$	✓ $-27x^8y^2$ ✓ $27x^6y^6$ ✓ grouping and common factor / groepering en gemeenskaplike faktor ✓ -3 ✓ $(x - y^2)(x + y^2)$ ✓ $(3x^3y - 2)(3x^3y + 2)$ (6)
		[14]

QUESTION 2 / VRAAG 2		
2.1.1	$x(x-4) = 12$ $x^2 - 4x - 12 = 0$ $(x-6)(x+2) = 0$ $x = 6$ or / of $x = -2$	✓ standard form / <i>standaardvorm</i> ✓ factors / <i>faktore</i> ✓ both answers / <i>albei antwoorde</i> (3)
2.1.2	$\frac{x-3}{1-x^2} - \frac{2x+4}{x+1} = \frac{-2x}{x-1}$ $\frac{-(x-3)}{(x-1)(x+1)} - \frac{2x+4}{x+1} = \frac{-2x}{x-1}$ $-(x-3) - (2x+4)(x-1) = -2x(x+1)$ $-x+3-2x^2-2x+4 = -2x^2-2x$ $-x = -7$ $x = 7$	✓ $-(x-3)$ ✓ $(x-1)(x+1)$ ✓ $-2x^2-2x+4$ ✓ $-2x^2-2x$ ✓ $x=7$ (5)
2.1.3	$2^x - 2^{x-1} = 4$ $2^x(1-2^{-1}) = 4$ $2^x\left(\frac{1}{2}\right) = 4$ $2^x = 8$ $2^x = 2^3$ $x = 3$	✓ $2^x(1-2^{-1})$ ✓ $2^x = 8$ ✓ $x = 3$ (3)
2.2.1	$-2 \leq -2x - 1 < 3$ $-1 \leq -2x < 4$ $-2 < x \leq \frac{1}{2}$	✓ $-1 \leq -2x < 4$ ✓ $x \leq \frac{1}{2}$ ✓ $-2 < x$ (3)
2.2.2	$x \in \left[-2; \frac{1}{2}\right]$	✓ correct answer / <i>korrekte antwoord</i> (1)
2.2.3		✓ correct number line / <i>korrekte getalleglyn</i> (1)

MEMORANDUM

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2.3	$x^2 + (x+1)^2 = 85$ $x^2 + x^2 + 2x + 1 - 85 = 0$ $2x^2 + 2x - 84 = 0$ $2(x+7)(x-6) = 0$ $x = -7$ or / of $x = 6$ N/A / n.v.t. Numbers / Getalle: 6; 7	$\checkmark x^2 + (x+1)^2 = 85$ $\checkmark$ simplify / vereenvoudig $\checkmark$ show that -7 is N / A / aandui dat -7 nvt is $\checkmark$ Numbers / Getalle: 6; 7 (4)
		[20]

**QUESTION 3 /
VRAAG 3**

3.1	$T_n = \frac{1}{3n+1}$ $T_1 = \frac{1}{3(1)+1} = \frac{1}{4}$ $T_2 = \frac{1}{3(2)+1} = \frac{1}{7}$ The first two terms are: / Die eerste twee terme is: $\frac{1}{4}, \frac{1}{7}$	$\checkmark \frac{1}{4}$ $\checkmark \frac{1}{7}$ (2)
3.2	$\frac{1}{325} = \frac{1}{3n+1}$ $3n+1=325$ $3n=324$ $n=108$	$\checkmark \frac{1}{325} = \frac{1}{3n+1}$ $\checkmark n=108$ (2)
		[4]

QUESTION 4 /
VRAAG 4

4.1	$B(2;0)$ $C(0;-4)$ $y = ax^2 - q$ $y = ax^2 - 4$ $0 = a(2)^2 - 4$ $4 = 4a$ $a = 1$ $y = x^2 - 4$	✓ coordinate B and C / <i>koördinate B en C</i> ✓ correct substitute / <i>korrekte</i> <i>vervanging</i> ✓ answer / <i>antwoord</i> (3)
4.2	$D(0;1)$ $A(-2;0)$ $y = mx + c$ $0 = m(-2) + 1$ $-1 = -2m$ $m = \frac{1}{2}$ $y = \frac{1}{2}x + 1$	✓ coordinate of D / <i>Koördinaat van D</i> ✓ correct substitute / <i>korrekte</i> <i>vervanging</i> ✓ $m = \frac{1}{2}$ (3)
4.3	$y = \frac{1}{2}x + 1$ $y = 2x - 4$ $2x - 4 = \frac{1}{2}x + 1$ $\frac{3}{2}x = 5$ $x = \frac{10}{3}$ $y = 2\left(\frac{10}{3}\right) - 4$ $y = \frac{8}{3}$ $E\left(\frac{10}{3}; \frac{8}{3}\right)$	 ✓ $2x - 4 = \frac{1}{2}x + 1$ ✓ $x = \frac{10}{3}$ ✓ $y = \frac{8}{3}$ (3)

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4.4	$y \geq -4$	✓ answer / <i>antwoord</i> (1)
4.5	$0 \leq x \leq 2$ OR / OF $x \in [0; 2]$	✓ correct values / <i>korrekte waardes</i> ✓ correct inequality signs / <i>korrekte ongelykheidstekens</i> (2)
		[12]
TOTAL / TOTAAL: 50		