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)*

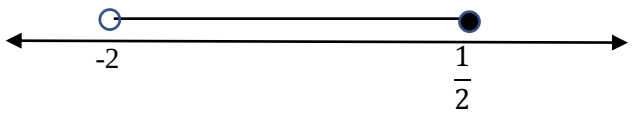
TIME / *TYD*: 60 minutes / *minute*

TOTAL / *TOTAAL*: 50

MEMORANDUM	MATHEMATICS / *WISKUNDE* (PAPER / *VRAESTEL* 1) GRADE / *GRAAD* 10

GAUTENG DEPARTMENT OF EDUCATION /
GAUTENGSE DEPARTEMENT VAN ONDERWYS
PROVINCIAL EXAMINATION /
PROVINSIALE EKSAMEN

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	$\frac{9^{x+1}.5^{x+2}}{45^{x+1}}$ $=\frac{3^{2x+2}.5^{x+2}}{3^{2x+2}.5^{x+1}}$ $=5$ **OR / *OF*** $\frac{9^{x+1}.5^{x+2}}{45^{x+1}}$ $=3^{2x+2-2x-2}.5^{x+2-x-1}$ $=5$	✓3^{2x+2} ✓$3^{2x+2}.5^{x+1}$ ✓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 / *standaardvorm* ✓factors / *faktore* ✓both answers / *albei antwoorde* (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	$2^x-2^{x-1}=4$ $2^x\left(1-2^{-1}\right)=4$ $2^x\left(\frac{1}{2}\right)=4$ $2^x=8$ $2^x=2^3$ $x=3$	✓$2^x\left(1-2^{-1}\right)$ ✓$2^x=8$ ✓$x=3$ (3)
2.2.1	$-2\le-2x-1<3$ $-1\le-2x<4$ $-2<x\le\frac{1}{2}$	✓$-1\le-2x<4$ ✓$x\le\frac{1}{2}$ ✓$-2<x$ (3)
2.2.2	$x\in\left(-2;\frac{1}{2}\right]$	✓correct answer / *korrekte antwoord* (1)
2.2.3		✓correct number line / *korrekte getallelyn* (1)

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	✓ $x^2+(x+1)^2=85$ ✓simplify / *vereenvoudig* ✓ show that -7 is N / A / *aandui dat -7 nvt is* ✓ 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*: $\frac{1}{4},\frac{1}{7}$	✓ $\frac{1}{4}$ ✓ $\frac{1}{7}$ (2)
3.2	$\frac{1}{325}=\frac{1}{3n+1}$ $3n+1=325$ $3n=324$ $n=108$	✓ $\frac{1}{325}=\frac{1}{3n+1}$ ✓ $n=108$ (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 / *koördinate B en C* ✓correct substitute / *korrekte vervanging* ✓answer / *antwoord* (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 / *Koördinaat van D* ✓correct substitute / *korrekte vervanging* ✓ $m=\frac{1}{2}$ (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)

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