GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENGSE DEPARTEMENT VAN ONDERWYS

PROVINSIALE EKSAMEN

JUNIE 2016

GRAAD 10

WISKUNDE
(VRAESTEL 1)

MEMORANDUM

6 bladsye

GAUTENGSE DEPARTEMENT VAN ONDERWYS

PROVINSIALE EKSAMEN

WISKUNDE
(Vraestel 1)

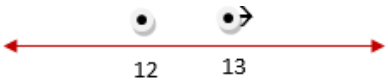
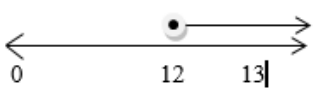
MEMORANDUM

VRAAG 1					
1.1	$0{,}88 = \frac{88}{100} = \frac{44}{50} = \frac{22}{25}$		✓Enige aanvaarbare gewone breuk	(1)	
1.2	$x = 11$ ongedefinieerd		11✓	(1)	
1.3	Tussen 6 en 7		6✓,7✓	(2)	
					[4]
VRAAG 2					
2.1	2.1.1	$(2x+3)(2x^2-x-2)$ $= 4x^3 - 2x^2 - 4x + 6x^2 - 3x - 6$ $= 4x^3 + 4x^2 - 7x - 6$	vermenigvuldiging✓ vereenvoudiging✓	(2)	
	2.1.2	$\frac{x+3}{x-3} \times \frac{x^3-27}{x^2-9} \times \frac{x-3}{x^2+3x+9}$ $= \frac{x+3}{x-3} \times \frac{(x-3)(x^2+3x+9)}{(x-3)(x+3)} \times \frac{x-3}{x^2+3x+9}$ $= 1$	$(x-3)(x^2+3x+9)$ $(x-3)(x+3)$ ✓✓ 1✓	(3)	
	2.1.3	$\frac{2x^2y^{-2} \times 8x^{-5}y^8}{(2x^{-2}y^4)^2}$ $= \frac{16x^{-3}y^6}{4x^{-4}y^8}$ $= 4xy^{-2}$ $= \frac{4x}{y^2}$	$x^{-3}y^6$✓ $4x^{-4}y^8$✓ $\frac{4x}{y^2}$✓	(3)	

		OR $= \frac{2x^2y^{-2}8x^{-5}y^8}{4x^{-4}.y^8}$ $= \frac{2x^2.x^4.8y^8}{4y^8.y^2.x^5}$ $= 4xy^{-2}$ $= \frac{4x}{y^2}$	OR $x^{-4}y^8$✓ $2x^2.x^4.8y^8$✓ $\frac{4x}{y^2}$✓		

2.2	2.2.1	$(2a-1)(a+5)$	$(2a-1)$✓ $(a+5)$ ✓	(2)	
	2.2.2	$a^2+a(4+b)+4b$ $=a^2+4a+ab+4b$ $=(a^2+4a)+(ab+4b)$ $=a(a+4)+b(a+4)$ $=(a+b)(a+4)$	$4a+ab$ ✓ $a(a+4)+b(a+4)$✓ Aanvaar alterntiewe groepering $(a+b)(a+4)$ ✓	(3)	
					[13]

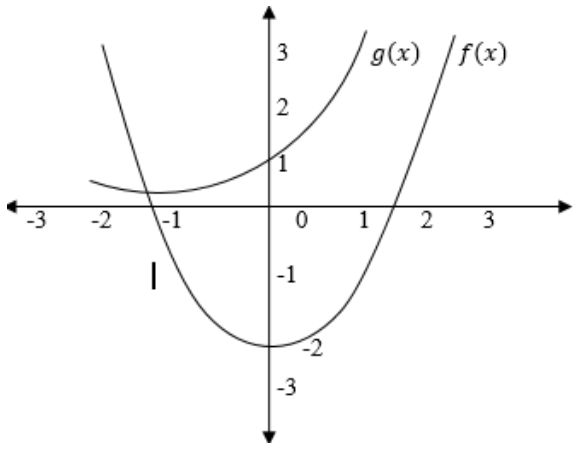
VRAAG 3

3.1	3.1.1	$(x-a)(x+b)=0$ $x-a=0$ or $x+b=0$ $x=a$ or $x=-b$	$x=a$ ✓ $x=-b$ ✓	(2)	
	3.1.2	$2^x+2^{x-1}=12$ $2^x\left(1+\frac{1}{2}\right)=12$ $2^x=8$ $x=3$	2^x ✓ $\left(1+\frac{1}{2}\right)$ ✓ of $(1+2^{-1})$ 8 ✓ of 2^3 $x=3$ ✓	(4)	
3.2	$2(2x-3)-18\geq 2x$ $4x-6-18\geq 2x$ $4x-2x\geq 6+18$ $2x\geq 24$ $x\geq 12$  	Vereenvoudiging $4x-6$✓ $x\geq 12$✓ Aanduiding op die getallyn en 12 moet ingesluit wees ✓pylpunt✓ NB: Indien12 ingesluit is en lyn - 1punt	(4)	

3.3	$2x + y = 6$ … … … …1 $4x + 3y = 10$ …….2 $y = 6 - 2x$ … … … …..3 Verv. 3 in 2 $4x + 3(6 - 2x) = 10$ $4x + 18 - 6x = 10$ $-2x = -8$ $x = 4$ Verv $x = 4$ in verg. 1 $2(4) + y = 6$ $8 + y = 6$ $y = -2$ Alternatiewe metode (eliminasiemetode) $2x + y = 6$ … … … … …..1 $4x + 3y = 10$ … … … … … … 2 Vermenigvuldig verg. 1 met 2 $4x + 2y = 12$ ……..3 $4x + 3y = 10$ ……..2 Trek vergelyking 2 van verg. 3 af. $-y = 2$ $\therefore y = -2$ Verv. $y = -2$ in verg. 2 $4x + 3(-2) = 10$ $4x - 6 = 10$ $4x = 16$ $x = 4$	$y = 6 - 2x$ ✓ vervanging✓ $18 - 6x$ ✓ $x = 4$ ✓ $y = -2$ ✓ Vermenigvuldig met 2 ✓ Elimineer x ✓ $y = -2$ ✓ Vervanging✓ $x = 4$ ✓	(5)	**[15]**

VRAAG 4					
4.1	4.1.1	$\frac{10}{14}$; $\frac{12}{17}$	✓14✓17	(1)	
	4.1.2	Bo-aan $= 2n$ Onder $=3n-1$ $T_n = \frac{2n}{3n-1}$	$3n$✓-1 ✓	(3)	
4.2	4.2.1	$T_n = -2n^3$ $T_8 = -2(8)^3$ $T_8 = -1024$	-1024 ✓	(1)	
	4.2.2	$-432 = -2n^3$ $\frac{-432}{-2} = \frac{-2n^3}{-2}$ $216 = n^3$ $6 = n$	$T_n = -432$ ✓ $6 = n$ ✓	(2)	
					[7]

VRAAG 5

5.1	5.1.1	$f(x)=x^2-2$ $g(x)=3^x$ x | -1 | 0 | 1 y | -1 | -2 | -1 x | -1 | 0 | 1 y | $\frac{1}{3}$ | 1 | 3  	f(x) en $g(x)$ y-afsnit✓✓ ✓✓vorm van altwee grafieke	(4)
	5.1.2	$x > 0$	$x > 0$ ✓	(1)
	5.1.3	$y \geq -2$ **OR** $[-2;\infty)$	$y \geq -2$ ✓ **OR** $[-2;\infty)$ ✓ (brackets MUST be correct)	(1)
	5.1.4	2 eenhede af	2 af✓✓	(2)
5.2		$g(x)=\frac{a}{x}+q$ $-5=\frac{a}{5}-2$ $-15=a$ $g(x)=\frac{-15}{x}-2$	vervanging✓ van asimptote vervanging (5;-5) ✓ $a=-15$✓	(3) **[11]**
			TOTAAL:	**50**