



GAUTENGSE DEPARTEMENT VAN ONDERWYS
PROVINSIALE EKSAMEN
JUNIE 2017
GRAAD 10

WISKUNDE
VRAESTEL 2

MEMORANDUM

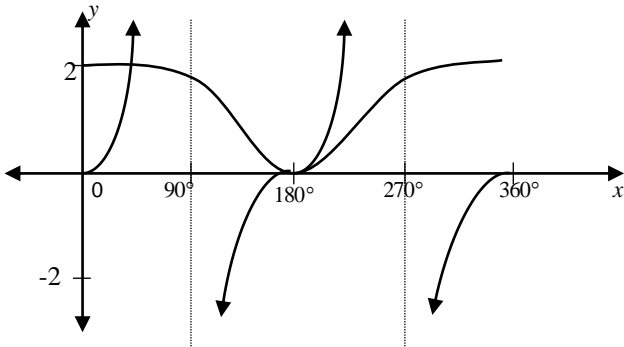
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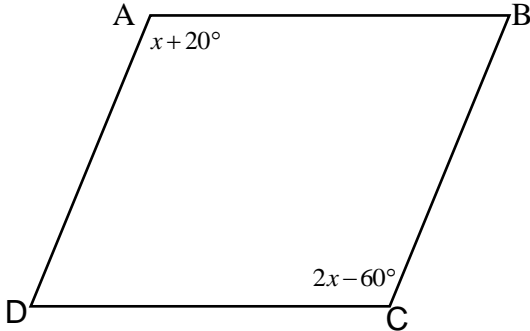
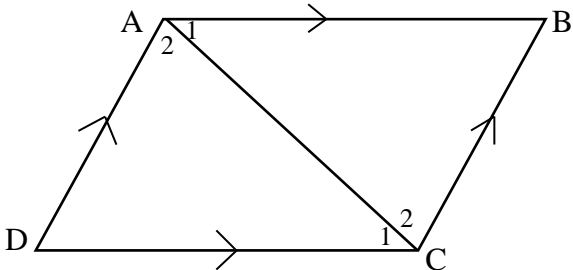
GAUTENGSE DEPARTEMENT VAN ONDERWYS
PROVINSIALE EKSAMENWISKUNDE
(Vraestel 2)

MEMORANDUM

VRAAG 1			
1.1	$OP^2 = (4)^2 + (3)^2 \dots\dots Pythagoras$ $OP^2 = 25$ $OP = 5$		✓ $OP^2 = (4)^2 + (3)^2$ ✓ $OP^2 = 25$ ✓ $OP = 5$ (3)
1.2	1.2.1	$\sin \theta$ $= \frac{3}{5}$	✓ antwoord (1)
	1.2.2	$\cot \theta$ $= \frac{4}{3}$	✓ antwoord (1)
	1.2.3	$\sin^2 \theta + \cos^2 \theta$ $= \left(\frac{3}{5}\right)^2 + \left(\frac{4}{5}\right)^2$ $= \frac{9}{25} + \frac{16}{25}$ $= 1$	✓ $\frac{4}{5}$ ✓ antwoord (2)
			[7]

VRAAG 2			
PENALISEER SLEGS EEN KEER VIR VERKEERDE AFRONDING.			
2.1	2.1.1	$3\sin 138,7^\circ$ $=1,980$	✓ antwoord (1)
	2.1.2	$\sec 50^\circ$ $=1,556$	✓ antwoord (1)
	2.1.3	$\frac{4 \tan^2 288,2^\circ \cdot \cos 164,6^\circ}{\sin 199,4^\circ}$ $=107,402$	✓✓ antwoord (2)
2.2	2.2.1	$\cos 30^\circ + \tan 60^\circ$ $=\frac{\sqrt{3}}{2} + \sqrt{3}$ $=\frac{\sqrt{3} + 2\sqrt{3}}{2}$ $=\frac{3\sqrt{3}}{2}$	✓ $\frac{\sqrt{3}}{2}$ ✓ $\sqrt{3}$ ✓ antwoord (3)
	2.2.2	$\frac{\sin 45^\circ}{\cos 45^\circ} - 5 \operatorname{cosec} 90^\circ + 3 \tan^2 30^\circ$ $=\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} - 5(1) + 3\left(\frac{1}{\sqrt{3}}\right)^2$ $=1 - 5 + 3\left(\frac{1}{3}\right)$ $=-3$	✓ $\frac{\sin 45^\circ}{\cos 45^\circ} = 1$ ✓ $\operatorname{cosec} 90^\circ = 1$ ✓ $\tan 30^\circ = \frac{1}{\sqrt{3}}$ ✓ $\frac{1}{3}$ ✓ antwoord (5)
			[12]

VRAAG 3			
3.1	$\tan \theta = 4,96$ $\theta = 78,60^\circ$		✓ antwoord (1)
3.2	$2\sin(2\theta - 10^\circ) = 1$ $\sin(2\theta - 10^\circ) = \frac{1}{2}$ $(2\theta - 10^\circ) = 30^\circ$ $2\theta = 40^\circ$ $\theta = 20^\circ$		✓ deel deur 2 ✓ 30° ✓ antwoord (3)
			[4]
VRAAG 4			
4.1			$f(x) = 2 \tan x$ ✓ vorm ✓ asimptote ✓ $(45^\circ; 2)$ $g(x) = \cos x + 1$ ✓ vorm ✓ x -afsnit ✓ y -afsnit (6)
4.2	4.2.1	1	✓ antwoord (1)
	4.2.2	180°	✓ antwoord (1)
	4.2.3	$y \in [0; 2]$ OF $0 \leq y \leq 2$	✓ kritieke waardes ✓ korrekte hakies/ ongelykheid (2)
			[10]

VRAAG 5			
5.1	Albei pare oorstaande sye is ewewydig. Alle sye is gelyk. Diagonale halveer die hoeke. Diagonale halveer mekaar reghoekig. Albei pare oorstaande hoeke is gelyk.		✓✓ enige twee antwoorde (2)
5.2			
	$\hat{A} = \hat{C}$ $x + 20^\circ = 2x - 60^\circ$ $x = 80^\circ$ $\hat{C} = 100^\circ$	Oorstaande hoeke van $//^m$	✓ bewering ✓ antwoord (2)
			[4]
VRAAG 6			
6.1			
	Konstrueer diagonaal AC In $\triangle ADC$ en $\triangle ABC$ $AC = AC$ $\hat{A}_1 = \hat{C}_1$ $\hat{A}_2 = \hat{C}_2$ $\triangle ADC \cong \triangle ABC$ $\therefore AB = DC$ $\therefore AD = BC$	Gemeenskaplik Verwiss hoeke $AB // DC$ Verwiss hoeke $AD // BC$ $s \ll$ $\triangle ADC \cong \triangle ABC$ $\triangle ADC \cong \triangle ABC$	✓ konstruksie ✓ verwisselende hoeke $AB // CD$ ✓ verwisselende hoeke $AD // BC$ ✓ $\triangle ADC \cong \triangle ABC$ ✓ $AB = DC$ EN $AD = BC$ (5)

6.2.			
6.2.1	$\hat{F}_1 = \hat{E}_2$ $\hat{F}_1 + \hat{F}_2 = \hat{E}_1 + \hat{E}_2 = 180^\circ$ $\therefore \hat{F}_2 = \hat{E}_1$	Verwisselende hoeke AF//EC Hoeke op 'n reguitlyn	✓ bewering en rede ✓ bewering en rede ✓ $\therefore \hat{F}_2 = \hat{E}_1$ (3)
6.2.2	In $\triangle AFD$ en $\triangle BEC$ $AF = EC$ $\hat{D}_1 = \hat{B}_2$ $\hat{F}_2 = \hat{E}_1$ $\therefore \triangle AFD \equiv \triangle BEC$ $AD = BC$ $AB \parallel DC$ ABCD is 'n parallelogram	Oorstaande sye \parallel^m Verwiss hoeke AD//BC Bewys $s < <$ $\triangle AFD \equiv \triangle BEC$ Een paar sye $\equiv \parallel$	✓ identifiseer korrekte \triangle ✓ $AF = EC$ ✓ $\therefore \triangle AFD \equiv \triangle BEC$ ✓ $AD = BC$ ✓ rede (5)
			[13]
			TOTAAL: 50