

**GAUTENGSE DEPARTEMENT VAN ONDERWYS**  
**PROVINSIALE EKSAMEN**  
**JUNIE 2018**  
**GRAAD 10**

**WISKUNDE**  
**VRAESTEL 2**

**NASIENRIGLYNE**

**6 bladsye**

GAUTENGSE DEPARTEMENT VAN ONDERWYS  
PROVINSIALE EKSAMENWISKUNDE  
(Vraestel 2)

## NASIENRIGLYNE

VRAAG 1			
1.1	1.1.1	$r^2 = x^2 + y^2$ $r^2 = 5^2 + 12^2$ $r^2 = 25 + 144$ $\sqrt{r^2} = \sqrt{169}$ $r = 13$	✓Pythagoras  ✓ $r = 13$  (2)
	1.1.2	$\sin\theta = \frac{12}{13}$  $\cot\theta = \frac{5}{12}$	✓ $\frac{12}{13}$  ✓ $\frac{5}{12}$  (2)
	1.1.3	LK: $\sin\theta \cdot \cot\theta \cdot \sec\theta$ RK: 1  $= \frac{12}{13} \times \frac{5}{12} \times \frac{13}{5}$ $= 1$	✓ vervang korrekte waardes  ✓ 1  (2)
			[6]

## VRAAG 2

2.1		$\frac{4 \sin 120^\circ}{\tan 200^\circ - \cos 70^\circ}$ $=157,82$	✓✓ antwoord (2)
2.2	2.2.1	$3 \cos \theta = 2,1$ $\cos \theta = \frac{2,1}{3}$ $\cos \theta = 0,7$ $\theta = \cos^{-1} 0,7$ $\theta = 45,6^\circ$	✓ vereenvoudig ✓ $45,6^\circ$ (2)
	2.2.2	$\sin(\theta + 25^\circ) = 0,845$ $\theta + 25^\circ = \sin^{-1} 0,845$ $\theta = 57,67^\circ - 25^\circ$ $\theta = 32,7^\circ$	✓ $\theta = 57,67^\circ$ ✓ $\theta = 32,7^\circ$ (2)
			[6]

## VRAAG 3

3.1	$\cos 0^\circ + \sin 60^\circ + \sqrt{2} \sin 45^\circ$ $= 1 + \left(\frac{\sqrt{3}}{2}\right) + \sqrt{2} \left(\frac{1}{\sqrt{2}}\right)$ $= 1 + \frac{3}{4} + 1$ $= 2\frac{3}{4}$	$\checkmark 1$ $\checkmark \frac{\sqrt{3}}{2}$ $\checkmark \frac{1}{\sqrt{2}}$ $\checkmark 2\frac{3}{4}$  (4)
3.2	$x \cdot \tan 60^\circ = \frac{\cos 50^\circ \cdot \cos 30^\circ \cdot \sec 50^\circ}{\tan 45^\circ}$ $x \cdot \sqrt{3} = \frac{(\cos 50^\circ \cdot \sec 50^\circ) \cdot \frac{\sqrt{3}}{2}}{1}$ $x = 1 \cdot \frac{\sqrt{3}}{2} \div \sqrt{3}$ $x = \frac{1}{2}$	$\checkmark \sqrt{3}$ $\checkmark \frac{\sqrt{3}}{2}$ $\checkmark \cos 50^\circ \cdot \sec 50^\circ = 1$ $\checkmark 1$ $\checkmark \frac{1}{2}$  (5)

3.3	<p>3.3.1</p>	$f(x) = 2 \tan x$ $\checkmark$ vorm $\checkmark$ asimptote $\checkmark (45^\circ; 2)$ $g(x) = \cos x + 1$ $\checkmark$ vorm $\checkmark$ x-afsnit $\checkmark$ y-afsnit  (6)
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	3.3.2	1	✓1	(1)
	3.3.3	$180^\circ$	✓1	(1)
	3.3.4	$x \in [-90^\circ; 90^\circ]$	✓kritieke waardes ✓ongelykheid	(2)
				<b>[19]</b>
<b>VRAAG 4</b>				
4.1	$x = 60^\circ$ $\therefore A \square = 2x = 2(60^\circ)$ $A \square = 120^\circ$ $\therefore A \square + B \square = 180^\circ$ $\therefore AD // BC$	AB//DC Ko-binnehoeke  Ko-binnehoeke aanvullend	✓B ✓R  ✓ $A \square + B \square = 180^\circ$ ✓R	(4)
4.2	ABCD is 'n parallelogram.	Oorstaande sye parallel  Oorstaande hoeke gelyk	✓parallelogram  ✓korrekte rede	(2)
				<b>[6]</b>

## VRAAG 5

5.1	$\hat{C}_1 = \hat{D}_1$ $\hat{C}_1 = \hat{C}_2$ $\hat{C}_2 = \hat{B}_2$ $\hat{D}_1 = \hat{B}_2$ $BC = CD$	Verwisselende hoeke BD // CR  Gegee CR halveer $D\hat{C}E$  Ooreenkomstige hoeke BD // CR  Sye teenoor gelyke hoeke	$\checkmark R$  $\checkmark \hat{C}_1 = \hat{C}_2$  $\checkmark B/R$  $\checkmark B$  $\checkmark R$	(5)
5.2	$CD = BC$  $CD = AB$  $AD = BC$  ABCD is 'n rombus	Reeds bewys  Oorstaande sye parallelogram  Oorstaande sye parallelogram  Al 4 sye gelyk	$\checkmark B/R$  $\checkmark B/R$  $\checkmark R$	(3)
5.3	$BO = OD = 12 \text{ cm}$  $\hat{O} = 90^\circ$  $AB^2 = AO^2 + BO^2$ $(13)^2 = AO^2 + (12)^2$ $AO^2 = 169 - 144$ $AO^2 = 25$ $AO = 5$  $AO = OC$ $AC = 10 \text{ cm}$	Diagonale halveer mekaar  Diagonale halveer reghoekig  Pythagoras        Diagonale halveer mekaar	$\checkmark B/R$  $\checkmark B/R$  $\checkmark$ korrekte vervang   $\checkmark AO = 5$   $\checkmark AO = OC$  $\checkmark AC = 10 \text{ cm}$	(5)
				[13]
			<b>TOTAAL:</b>	<b>50</b>