



**PROVINCIAL EXAMINATION/
PROVINSIALE EKSAMEN
JUNE/*JUNIE* 2022
GRADE/*GRAAD* 10
MARKING GUIDELINES/
*NASIENRIGLYNE***

**MATHEMATICS/*WISKUNDE*
(PAPER 2)/(*VRAESTEL 2*)**

5 pages/*bladsye*

Q./Vr. 1	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
1.1	$r^2 = (-3)^2 + (-4)^2$ $r^2 = 25$ $r = 5$ $\therefore \sin \theta = -\frac{3}{5}$	✓ Using Pythagoras correctly/ <i>Gebruik Pythagoras korrek</i> ✓ $r = 5$ ✓ Answer/ <i>Antwoord</i>	(3)
1.2	$5\cos(90^\circ - \theta) + 3\cot \theta$ $5\left(\frac{-3}{5}\right) + 3\left(\frac{-4}{-3}\right)$ $= -3 + 4$ $= 1$	$5\left(\frac{-3}{5}\right)$ ✓ $3\left(\frac{-4}{-3}\right)$ ✓ Answer/ <i>Antwoord</i> ✓	(3)
			[6]
Q./Vr. 2	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
2.1	$\sin(\beta - 17.8^\circ) = 0,215$ $\beta - 17,8^\circ = 12,41554^\circ$ $\beta = 30,22^\circ$	✓ $12,41554^\circ$ ✓ $30,22^\circ$	(2)
2.2	$\tan 3\beta = \sqrt{3}$ $3\beta = 60^\circ$ $\beta = 20^\circ$	✓ $3\beta = 60^\circ$ ✓ Answer/ <i>Antwoord</i>	(2)
2.3	$3\sin\frac{\beta}{2} = 2,012$ $\sin\frac{\beta}{2} = 0,6706666$ $\frac{\beta}{2} = 37,42097785^\circ$ $\beta = 74,84^\circ$	✓ $0,6706666$ ✓ $37,4209778^\circ$ ✓ $74,84^\circ$	(3)
Q./Vr. 3	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
3.1	$\frac{\tan 30^\circ \cdot \operatorname{cosec} 60^\circ}{\cos 45^\circ \cdot \sin 45^\circ}$ $\frac{\frac{\sqrt{3}}{3} \times \frac{\sqrt{2}}{3}}{\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}}$ $= \frac{\sqrt{6}}{3}$	✓ $\frac{\sqrt{3}}{3}$ ✓ $\frac{\sqrt{2}}{3}$ ✓ $\frac{\sqrt{2}}{2}$ $\frac{\sqrt{2}}{2}$ ✓ Answer/ <i>Antwoord</i>	(4)
			[4]

Q./Vr 4	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
4.1	$a = -2 ; b = 1$	✓ $a = -2$ ✓ $b = 1$	(2)
4.2	$0^\circ \leq x \leq 180^\circ$	✓ Ineq /Ongelykhede ✓ critical values/ kriteke waardes	(2)
4.3	2	✓ Answer/Antwoord	(1)
4.4	$-1 \leq y \leq 1$ OR $[-1;1]$	✓ Inequalities/ Ongelykhede ✓ critical values/kriteke waardes	(2)
4.5	$x = 270^\circ$	✓ Answer/Antwoord	(1)
			[8]
Q./Vr. 5	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
5.1	Square and Rhombus/Vierkant en Ruit	✓ Answer/ Antwoord	(1)
5.2	Square and Rectangle/Vierkant en Reghoek	✓ Answer/ Antwoord	(1)
5.3	Square; Rectangle; Parallelogram; Rhombus Vierkant; Reghoek; Parallelogram; Ruit	✓✓ Answer/ Antwoord	(2)
			[4]

Q./Vr. 6	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
6.1	$\hat{M}_1 = x$ [alternate \angle s PS// QR] / [verwiss \angle^e ; PS// QR] $\hat{Q}_1 = x$ [angles opp = sides] / [\angle^e teenoor gelyke sye]	\checkmark S \checkmark R \checkmark S \checkmark R	(4)
6.2	$\hat{S} = \hat{Q}_1 + \hat{Q}_2$ [opp \angle s of //gm] / [oorst \angle^e van // ^m] $\hat{S} = 2x$ $\hat{M}_3 = 2x$ [\angle s opp = sides] / [\angle^e teenoor gelyke sye] OR/OF $\hat{P} = 180^\circ - (\hat{Q}_1 + \hat{Q}_2)$ [co-interior \angle s PS//QR/ ko-binne \angle^e ; PS//QR] $\hat{P} = 180^\circ - 2x$ $\hat{P} + \hat{S} = 180$ [co-interior \angle s SR//PQ/ ko-binne \angle^e ; SR//PQ] $\hat{S} = 2x$ $\hat{M}_3 = 2x$ [\angle s opp = sides / \angle^e teenoor gelyke sye]	\checkmark S/R \checkmark S/R OR/OF \checkmark S/R \checkmark S/R	(2)
6.3	$\hat{M}_1 + \hat{M}_2 + \hat{M}_3 = 180^\circ$ [sum of interior \angle s of Δ som binnehoeke van Δ] $x + 90^\circ + 2x = 180^\circ$ $3x = 90^\circ$ $x = 30^\circ$	\checkmark S/R \checkmark Answer/Antwoord	(2)
			[8]
Q./Vr. 7	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
	$BD = BD$ [common/ gemeenskaplik] $\hat{D}_1 = \hat{B}_2$ [alternate \angle s AD// BC/ verwisselende binne \angle^e ; AD// BC] $\hat{B}_1 = \hat{D}_2$ [alternate \angle s AB// DC/ verwisselende binne \angle^e ; B// DC] $\therefore \Delta ABC \equiv \Delta CBD$ [AAS] / $\angle\angle S$ $\therefore AD = BC$ and/ en $AB = DC$	\checkmark S \checkmark S/R \checkmark S \checkmark S \checkmark R	(5)
			[5]

Q./Vr. 8	Suggested solution/Voorgestelde oplossing	Explanation/ Verduideliking	Marks/ Punte
8.1	$AO = OC$ [diagonals of//gm bisect/ hoeklyne van // ^m halveer] $DO = OB$ [diagonals of//gm bisect/ hoeklyne van // ^m halveer] $\therefore BOAF$ is a //gm [opp sides of a quad equal/ oorst sye van vierhoek is gelyk]	✓ S ✓ R ✓ S ✓ R	(4)
8.2	$EA \parallel BC$ given / gegee $BF \parallel AC$ proven / bewys $EBCA$ is a //gm [two pairs of opp sides \parallel / twee pare teenoorst sye \parallel] $EA = BC$ $EA = AD$	✓ S ✓ S ✓ R ✓ S	(4)
			[8]

TOTAL/TOTAAL: 50