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/*Gebruik Pythagoras korrek* ✓$r = 5$ ✓Answer/*Antwoord*	(3)
1.2	$5\cos(90° - \theta) + 3\cot\theta$ $5(\frac{-3}{5}) + 3\left(\frac{-4}{-3}\right)$ $= -3 + 4$ $= 1$	$5(\frac{-3}{5})$✓ $3\left(\frac{-4}{-3}\right)$✓ Answer/*Antwoord* ✓	(3)
			[6]
Q./*Vr. 2*	**Suggested solution/*Voorgestelde oplossing***	**Explanation/ *Verduideliking***	**Marks/ *Punte***
2.1	$\sin(\beta - 17.8°) = 0{,}215$ $\beta - 17{,}8° = 12{,}41554°$ $\beta = 30{,}22°$	✓ 12,41554° ✓ 30,22°	(2)
2.2	$\tan 3\beta = \sqrt{3}$ $3\beta = 60°$ $\beta = 20°$	✓ $3\beta = 60°$ ✓ Answer/*Antwoord*	(2)
2.3	$3\sin\frac{\beta}{2} = 2{,}012$ $\sin\frac{\beta}{2} = 0{,}6706666$ $\frac{\beta}{2} = 37{,}42097785°$ $\beta = 74{,}84°$	✓ 0,6706666 ✓ 37,4209778° ✓ 74,84°	(3)
Q./*Vr. 3*	**Suggested solution/*Voorgestelde oplossing***	**Explanation/ *Verduideliking***	**Marks/ *Punte***
3.1	$\frac{tan\ 30°.cosec\ 60°}{cos\ 45°.sin\ 45°}$ $\frac{\frac{\sqrt{3}}{3} \times \frac{\sqrt{2}}{3}}{\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}}$ $= \frac{\sqrt{6}}{3}$	✓ $\frac{\sqrt{3}}{3}$ ✓ $\frac{\sqrt{2}}{3}$ ✓ $\frac{\sqrt{2}}{2}$ $\frac{\sqrt{2}}{2}$ ✓ Answer/*Antwoord*	(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	$0° \leq x \leq 180°$	✓ IneQ /*Ongelykhede* ✓ critical values/ *kritieke waardes*	(2)
4.3	2	✓ Answer/*Antwoord*	(1)
4.4	$-1 \leq y \leq 1$ **OR** [-1;1]	✓Inequalities/ *Ongelykhede* ✓ critical values/*kritieke waardes*	(2)
4.5	$x = 270°$	✓ 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 $<$s PS// QR] /[*verwiss* $\angle^e$; $PS // QR$] $\hat{Q}_1 = x$ [angles opp = sides]/[$\angle^e$ *teenoor gelyke sye*]	✓ S ✓R ✓ S ✓R	(4)
6.2	$\hat{S} = \hat{Q}_1 + \hat{Q}_2$ [opp $<$s of //gm]/[*oorst* $\angle^e$ *van* $\|\|^m$] $\hat{S} = 2x$ $\hat{M}_3 = 2x$ [$<$s opp = sides]/[$\angle^e$ *teenoor gelyke sye*] **OR/*OF*** $\hat{P} = 180° - (\hat{Q}_1 + \hat{Q}_2)$ [co-interior $<$s PS//QR/ *ko-binne*$\angle^e$; $PS // QR$] $\hat{P} = 180° - 2x$ $\hat{P} + \hat{S} = 180$ [co-interior $<$s SR//PQ/ *ko-binne*$\angle^e$; $SR // PQ$] $\hat{S} = 2x$ $\hat{M}_3 = 2x$ [$<$s opp = sides/$\angle^e$ *teenoor gelyke sye*]	✓ S/R ✓S/R **OR/*OF*** ✓ S/R ✓ S/R	(2)
6.3	$\hat{M}_1 + \hat{M}_2 + \hat{M}_3 = 180°$ [sum of interior $<$s of Δ *som binnehoeke van* Δ] $x + 90° + 2x = 180°$ $3x = 90°$ $x = 30°$	✓ S/R ✓ 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 $<$s AD// BC/ *verwisselende binne*$\angle^e$; $AD // BC$] $\hat{B}_1 = \hat{D}_2$ [alternate $<$s AB // DC/ *verwisselende binne*$\angle^e$; $B // DC$] $\therefore \Delta ABC \equiv \Delta CBD$ [AAS] / $\angle\angle S$ $\therefore AD = BC$ *and/en* $AB = DC$	✓ S ✓ S/R ✓ S ✓ S ✓ 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/'n //gm* [opp sides of a quad equal/ *oorst sye van vierhoek is gelyk*]	✓ S ✓ R ✓ S ✓ R	(4)
8.2	$EA // BC$ given / *gegee* $BF // AC$ proven / *bewys* $EBCA$ *is a/'n //gm* [two pairs of opp sides || / *twee pare teenoorst sye ||*] $EA = BC$ $EA = AD$	✓ S ✓ S ✓ R ✓ S	(4)
			[8]

TOTAL/*TOTAAL*: 50