Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIORSERTIFIKAAT*

GRADE/*GRAAD* 12

JUNE/*JUNIE* 2024

MATHEMATICS P2/*WISKUNDE V2*
MARKING GUIDELINE/*NASIENRIGLYN*

MARKS/*PUNTE*: 150

This marking guideline consists of 19 pages./
Hierdie nasienriglyn bestaan uit 19 bladsye.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out an attempt of a question and not redone a question, mark the crossed-out version.
- Consistency accuracy applies in ALL aspects of the marking guideline. Stop marking at the second calculation error.
- Assuming answers/values in order to solve a problem is NOT acceptable.

GEOMETRY	
S	A mark for a correct statement. (A statement mark is independent of a reason).
R	A mark for the correct reason. (A reason mark may only be awarded only if the statement is correct.
S/R	Award a mark if a statement and a reason are both correct.

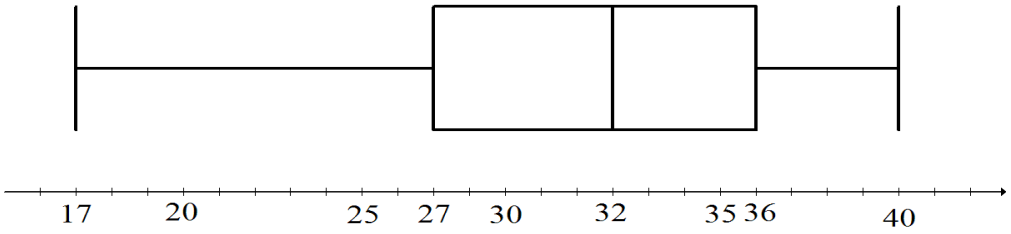
***NEEM KENNIS*:**

- *Indien 'n kandidaat 'n vraag TWEE keer beantwoord, merk slegs die EERSTE poging.*
- *Indien 'n kandidaat 'n poging van 'n vraag deurgetrek het en dit nie oorgedoen het nie, merk die deurgetrekte weergawe.*
- *Volgehoue akkuraatheid geld in ALLE aspekte van die nasienriglyn. Hou op merk by tweede berekenings fout.*
- *Om antwoorde/waardes te aanvaar om 'n probleem op te los is NIE aanvaarbaar NIE.*

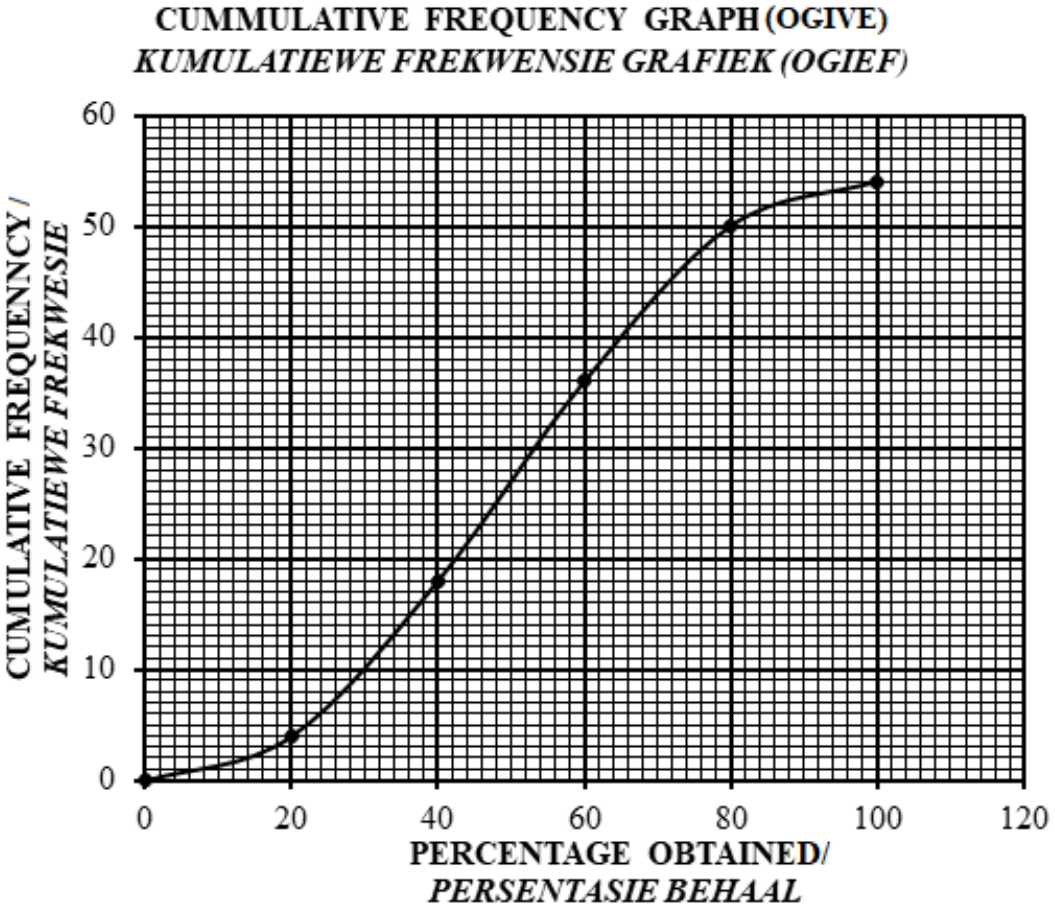
MEETKUNDE	
S	*'n Punt vir korrekte stelling.* *('n Stelling punt is onafhanklik van die rede)*
R	*'n Punt vir die korrekte rede.* *('n Rede punt mag net toegeken word as die stelling korrek is).*
S/R	*'n Punt word toegeken as die stelling en die rede beide korrek is.*

QUESTION/*VRAAG 1*

17	26	27	27	30	32	34	35	36	37	40

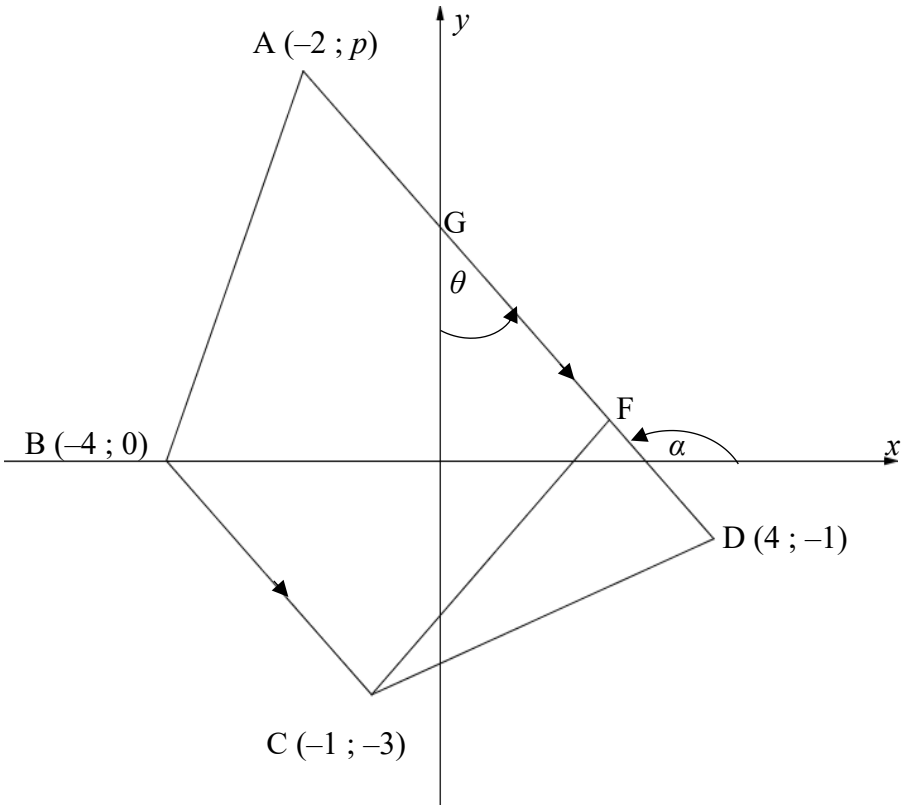
1.1	$\bar{x} = 31$ **OR/*OF*** $\bar{x} = \frac{341}{11}$ $= 31$	✓✓ answer / *antwoord* **OR/*OF*** ✓ 341 ✓ answer / *antwoord*	(2)
1.2	$\delta = 6{,}19$	✓ answer / *antwoord*	(1)
1.3	$\bar{x} + \delta = 31 + 6{,}19$ $= 37{,}19$ ∴ Temperatures were more than one standard deviation for 1 day. *Temperature was meer as een standaardafwyking vir* 1 *dag*.	✓ $\bar{x} + \delta = 31 + 6{,}19$ ✓ 37,19 ✓ conclusion / *gevolgtrekking*	(3)
1.4	IQR/*IKW* $= 36 - 27$ $= 9$	✓ Q_1 ✓ Q_3 ✓ answer / *antwoord*	(3)
1.5		✓ min. and/*en* max. / *maks.* ✓ Q_1 and/*en* Q_2 ✓ correct diagram *korrekte diagram*	(3)
			[12]

QUESTION/*VRAAG 2*



2.1	Percentage obtained / *Persentasie behaal* | Frequency / *Frekwensie* | Cumulative Frequency / *Kumulatiewe Frekwensie* $0 \le x < 20$ | 4 | 4 $20 \le x < 40$ | 14 | 18 $40 \le x < 60$ | 18 | 36 $60 \le x < 80$ | 14 | 50 $80 \le x < 100$ | 4 | 54	✓ 14 and / *en* 18 ✓14 and / *en* 4	(2)
2.2	54 matriculants / *matriekulante*	✓ answer / *antwoord*	(1)
2.3	$40 \le x < 60$	✓ answer / *antwoord*	(1)
2.4	50 %	✓ reading from the graph *lees van grafiek af* ✓ answer / *antwoord*	(2)
2.5	12 learners / *leerders*	✓ reading from the graph *lees van grafiek af* ✓ answer / *antwoord*	(2)
			[8]

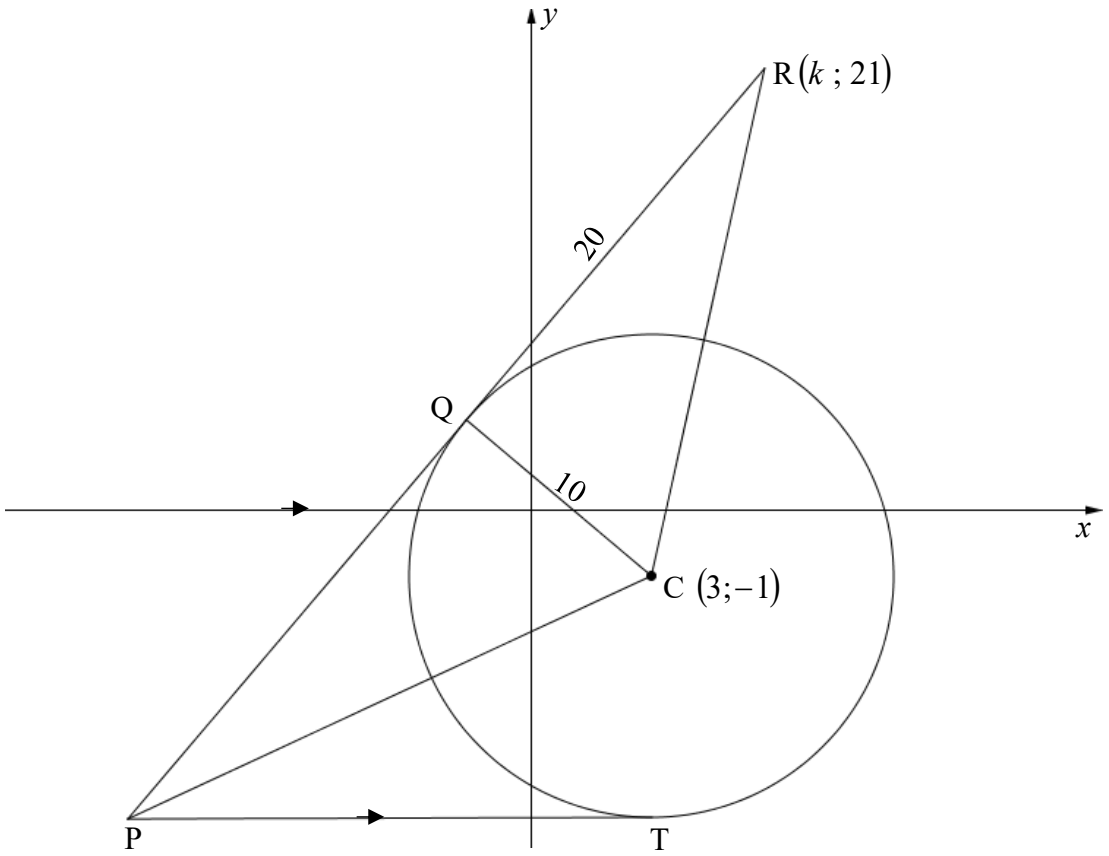
QUESTION/*VRAAG 3*



3.1	$BC = \sqrt{(-4+1)^2 + (0+3)^2}$ $= 3\sqrt{2}$	✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(2)
3.2	$m_{BC} = \frac{0+3}{-4+1}$ $= -1$	✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(2)
3.3	$m_{AD} = m_{BC} = -1 \quad [AD \parallel BC]$ $y+1 = -(x-4)$ $y = -x+3$ **OR/*OF*** $m_{AD} = m_{BC} = -1 \quad [AD \parallel BC]$ $-1 = -(4) + c$ $c = 3$ $y = -x+3$	✓ $m_{AD} = -1$ ✓ correct substitution *korrekte vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ $m_{AD} = -1$ ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(3)

3.4	$p = -(-2)+3$ $= 5$ **OR/*OF*** $m_{AB} = \frac{p-0}{-2+4}$ $= \frac{p}{2}$ $y-0 = \frac{p}{2}(x+4)$ $y = \frac{px}{2}+2p$ $\frac{p(-2)}{2}+2p = -(-2)+3$ $-p+2p = 5$ $p = 5$	✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(2)
3.5	$m_{CF} = \frac{-3-\frac{1}{2}}{-1-\frac{5}{2}}$ $= 1$ $\therefore m_{AD} \times m_{CF} = -1 \times 1 = -1$	✓ $m_{CF} = 1$ ✓ $m_{AD} \times m_{CF}$	(2)
3.6	$\tan\alpha = m_{AD} = -1$ $\therefore \alpha = 135^0$ $\therefore \theta = 45^0$ [ext $\angle$ of a Δ] / [*buite* $\angle$ *van* Δ]	✓ $\tan\alpha = m_{AD} = -1$ ✓ $\therefore \alpha = 135^0$ $\therefore \theta = 45^0$	(3)
3.7	$AD = \sqrt{(-2-4)^2+(5+1)^2}$ $= 6\sqrt{2}$ $CF = \sqrt{\left(-1-\frac{5}{2}\right)^2+\left(4-\frac{1}{2}\right)^2}$ $= \frac{7\sqrt{2}}{2}$ $\therefore$ Area of trapezium / *Oppervlakte van trapezium* $= \frac{1}{2}(AD+BC)\times CF$ $= \frac{1}{2}\left(6\sqrt{2}+3\sqrt{2}\right)\times\frac{7\sqrt{2}}{2}$ $= 31,50$	✓ AD ✓ CF ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(4)
			[18]

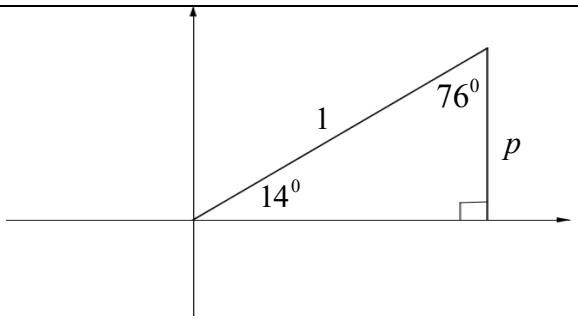
QUESTION/*VRAAG 4*



4.1	$C\hat{Q}R = 90^0$ [tan ⊥ chord] / [*raaklyn ⊥ koord*]	✓ S	(1)
4.2	$RC^2 = QC^2 + QR^2$ [Pyth. theorem/*stelling*] $RC^2 = 10^2 + 20^2$ $RC = \sqrt{500}$ or/*of* $10\sqrt{5}$	✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(2)
4.3	$(k-3)^2 + (21-(-1))^2 = (10\sqrt{5})^2$ $(k-3)^2 = 500 - 484$ $(k-3)^2 = 16$ $k-3 = \pm 4$ $k = 7$ or / *of* $k \neq -1$ **OR/*OF***	✓ RC or application of Pyth./ *RC of toepassing van Pyth.* ✓ simplification/ *vereenvoudiging* ✓ factors / *faktore* ✓ correct value of *k*/ *korrekte waarde van k* **OR/*OF***	
	$(k-3)^2 + (21-(-1))^2 = (10\sqrt{5})^2$ $k^2 - 6k + 9 + 484 = 500$ $k^2 - 6k - 7 = 0$ $(k-7)(k+1) = 0$ $k = 7$ *or* $k \neq -1$	✓ RC or application of Pyth./ *RC of toepassing van Pyth.* ✓ simplification/ *vereenvoudiging* ✓ factors / *faktore* ✓ correct value of *k*/ *korrekte waarde van k*	(4)

4.4	$(x-3)^2+(y+1)^2=100$	✓ LHS / *LK* ✓ RHS / *RK*	(2)
4.5	TC = 10 and/*en* TC ⊥ PT $\therefore$ T$(3;-11)$ $\therefore y=-11$	✓ $\therefore$ T$(3;-11)$ ✓ $\therefore y=-11$	(2)
4.6.1	T$(3;-11)$ $3(-11)-4x=35$ $\therefore x=-17$ $\therefore$ P$(-17;-11)$	✓ correct substitution/ *korrekte vervanging* ✓ *x*-value/ *x-waarde*	(2)
4.6.2	PQ = PT [tangents from same point are equal in length] [*raaklyne vanaf dieselfde punt is gelyk*] $=17+3=20$	✓ PQ = 20 ✓ R	(2)
4.6.3	Yes / *Ja* $\Delta QRC \equiv \Delta QCP$ [S∠S]	✓ Yes / *Ja* ✓ S ✓ R	(3)
4.7.1	$M(3\ ;-16)$	✓ answer / *antwoord*	(1)
4.7.2	$r=4$	✓ answer / *antwoord*	(1)
4.7.3	$r_1+r_2=4+10=14$ and / *en* $CM^2=(3-3)^2+(-16+1)^2$ $=15^2$ $CM=15$ $\therefore CM>r_1+r_2$ $\therefore$ The 2 circles do not intersect or touch *Die 2 sirkels sny of raak nie.*	✓ r_1+r_2 ✓ $CM=15$ ✓ conclusion/ *gevolgtrekking*	(3)
			[23]

QUESTION/*VRAAG 5*

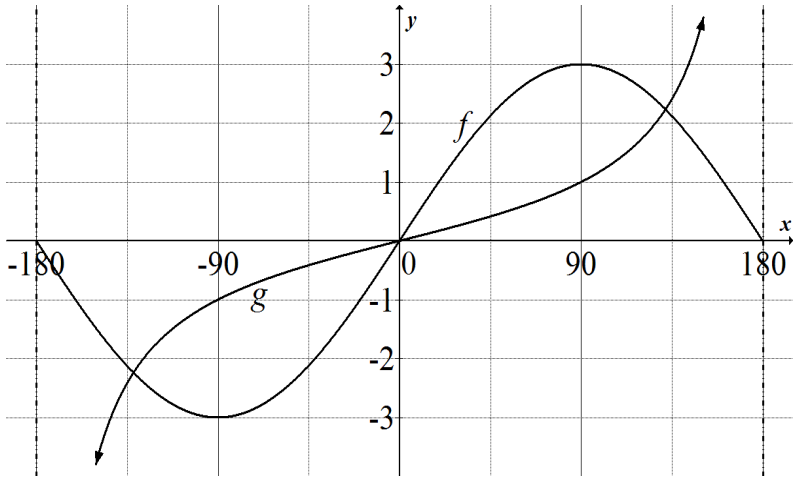
5.1.1	 $\cos 76^0 = p$ **OR/*OF*** $\cos 76^0 = \sin 14^0$ $= p$	✓ correct sketch/ *korrekte skets* ✓ answer / *antwoord* **OR/*OF*** ✓ co-ratio / *ko-verhouding* ✓ answer / *antwoord*	(2)
5.1.2	$x = \sqrt{1-p^2}$ Pyth. theorem/*stelling* $\cos 44^0 = \cos\left(30^0 + 14^0\right)$ $= \cos 30^0.\cos 14^0 - \sin 30^0.\sin 14^0$ $= \frac{\sqrt{3}}{2}.\sqrt{1-p^2} - \frac{1}{2}.p$	✓ *x*-value / *x-waarde* ✓ $\cos\left(30^0 + 14^0\right)$ ✓ expanding compound angle *uitbrei van saamgestelde ∠* ✓ answer / *antwoord*	(4)
5.1.3	$2\sin 218^0.\cos 38^0 = 2\left(-\sin 38^0\right).\cos 38^0$ $= -\sin 76^0$ $= -\sqrt{1-p^2}$	✓ $-\sin 38^0$ ✓ $-\sin 76^0$ ✓ answer / *antwoord*	(3)

5.2.1	$1+\frac{\sin\left(90^0+\theta\right).\cos\left(\theta-360^0\right)}{\sin\left(\theta-30^0-\theta\right)}$ $=1+\frac{(\cos\theta)(\cos\theta)}{\left(-\sin 30^0\right)}$ $=1-\frac{\cos^2\theta}{\frac{1}{2}}$ $=1-2\cos^2\theta$ $=-\left(2\cos^2\theta-1\right)$ $=-\cos 2\theta$ **OR/*OF*** $1+\frac{\sin\left(90^0+\theta\right).\cos\left(\theta-360^0\right)}{\sin\left(\theta-30^0\right)\cos\theta-\sin\theta\cos\left(\theta-30^0\right)}$ $=1+\frac{\cos\theta.\cos\theta}{(\sin\theta\cos 30^0-\sin 30^0\cos\theta)\cos\theta-\sin\theta(\cos\theta\cos 30^0+\sin\theta\sin 30^0)}$ $=1+\frac{\cos^2\theta}{\frac{\sqrt{3}}{2}\sin\theta\cos\theta-\frac{1}{2}\cos^2\theta-\frac{\sqrt{3}}{2}\sin\theta\cos\theta-\frac{1}{2}\sin^2\theta}$ $=1+\frac{\cos^2\theta}{-\frac{1}{2}\left(\cos^2\theta+\sin^2\theta\right)}$ $=1-\frac{\cos^2\theta}{\frac{1}{2}(1)}$ $=1-2\cos^2\theta$ $=-\left(2\cos^2\theta-1\right)$ $=-\cos 2\theta$	✓ $\cos\theta$ ✓ $\cos\theta$ ✓ $\sin\left(\theta-30^0-\theta\right)$ ✓ $\frac{1}{2}$ ✓ simplification/ *vereenvoudiging* ✓ answer/*antwoord* **OR/*OF*** ✓ $\cos\theta$ ✓ $\cos\theta$ ✓ expansion of compound angle/ *uitbrei van saamgestelde ∠* ✓ $\frac{1}{2}$ ✓ simplification/ *vereenvoudiging* ✓ answer/ *antwoord*	(6)
5.2.2	Max value/*Maks. waarde* = 1 **OR/*OF*** $y=1$	✓ answer/ *antwoord*	(1)

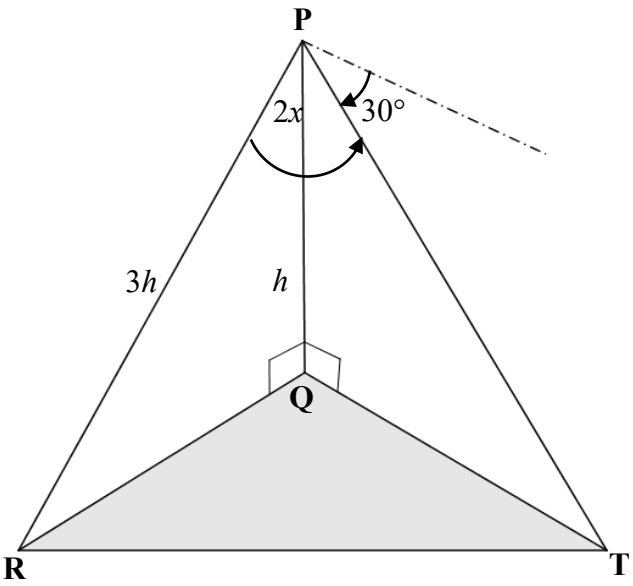
5.3	$LHS / LK = \dfrac{\sin 3x}{\sin x}$ $= \dfrac{\sin(2x+x)}{\sin x}$ $= \dfrac{\sin 2x\cos x + \sin x\cos 2x}{\sin x}$ $= \dfrac{2\sin x\cos x.\cos x + \sin x\cos 2x}{\sin x}$ $= \dfrac{\sin x(2\cos^2 x + 2\cos^2 x - 1)}{\sin x}$ $= 4\cos^2 x - 1$ $= 4(1-\sin^2 x) - 1$ $= 4 - 4\sin^2 x - 1$ $= 3 - 4\sin^2 x$ **OR / *OF*** $LHS / LK = \dfrac{\sin 3x}{\sin x}$ $= \dfrac{\sin(2x+x)}{\sin x}$ $= \dfrac{\sin 2x\cos x + \sin x\cos 2x}{\sin x}$ $= \dfrac{2\sin x\cos x.\cos x + \sin x\cos 2x}{\sin x}$ $= \dfrac{\sin x(\cos^2 x + \cos 2x)}{\sin x}$ $= 2 - 2\sin^2 x + 1 - 2\sin^2 x$ $= 3 - 4\sin^2 x$	✓ $\sin(2x+x)$ ✓ expansion / *uitbreiding* ✓ $\sin 2x = 2\sin x\cos x$ ✓ factors / *faktore* ✓ expression in terms of $\sin^2 x$/ *uitdrukking in terme van* $\sin^2 x$ **OR / *OF*** ✓ $\sin(2x+x)$ ✓ expansion / *uitbreiding* ✓ $\sin 2x = 2\sin x\cos x$ ✓ factors / *faktore* ✓ expression in terms of $\sin^2 x$/ *uitdrukking in terme van* $\sin^2 x$	(5)

5.4.1	$\sin^2 x+\sin 2x-3\cos^2 x=0$ $\sin^2 x+2\sin x\cos x-3\cos^2 x=0$ $(\sin x-\cos x)(\sin x+3\cos x)=0$ $\sin x=\cos x$ or / *of* $\sin x=-3\cos x$ $\tan x=1$ or / *of* $\tan x=-3$ $x=45+180^0.k$ or / *of* $x=108,44^0+180^0.k,\ k\in Z$ **OR / OF** $x=45^0+360^0.k$ or / *of* $x=225^0+360^0.k$ *or* $x=108,44^0+360^0.k$ or / *of* $x=288,44^0+360^0.k,\ k\in Z$	✓ $2\sin x\cos x$ ✓ factors / *faktore* ✓ both equations in terms of tan x *beide vergelykings i.t.v* tan x ✓ $x=45^0+180^0.k$ ✓ $x=108,44^0+180^0.k, k\in Z$ **OR / *OF*** ✓ both equations / *beide vergelykings* ✓ both equations and $k\in Z$ / *beide vergelykings en* $k\in Z$	(5)
5.4.2	$x=-71,44^0$ or / *of* $x=45^0$ or / *of* $x=108,44^0$	✓✓✓ each x-value/ *elke x-waarde*	(3)
			[29]

QUESTION/*VRAAG 6*

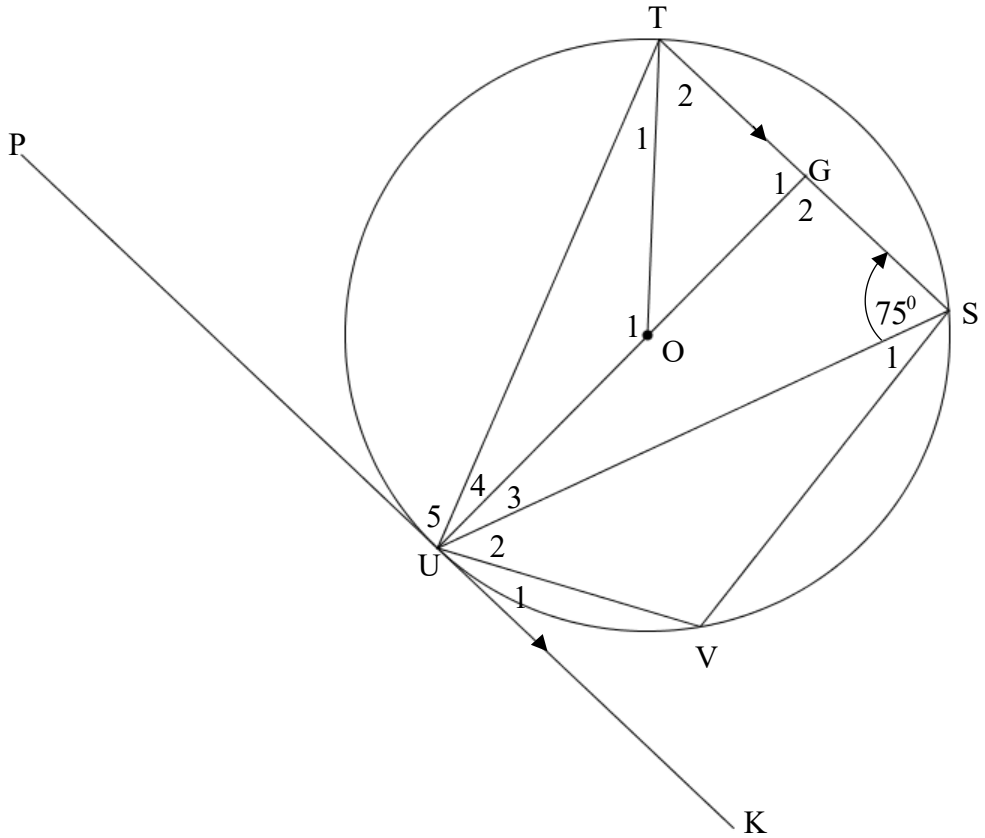
6.1		***f:*** ✓ intercepts with the axes/ *afsnitte met die asse* ✓ turning points/ *draaipunte* ✓ shape / *vorm* ***g:*** ✓ intercepts with the axes/ *afsnitte met die asse* ✓ asymptotes/ *asimptote* ✓ shape / *vorm*	(6)
6.2.1	360^0	✓ answer / *antwoord*	(1)
6.2.2	$x=-180^0$ or / *of* $x=180^0$	✓ $x=-180^0$ ✓ $x=180^0$	(2)
6.2.3	$-5\le y\le 1$ or / *of* $y\in[-5\,;1]$	✓ both cv's correct/ *beide kw's korrek* ✓ correct notation/ *korrekte notasie*	(2)
6.2.4	3 solutions / 3 *oplossings*	✓ answer / *antwoord*	(1)
			[12]

QUESTION/*VRAAG 7*



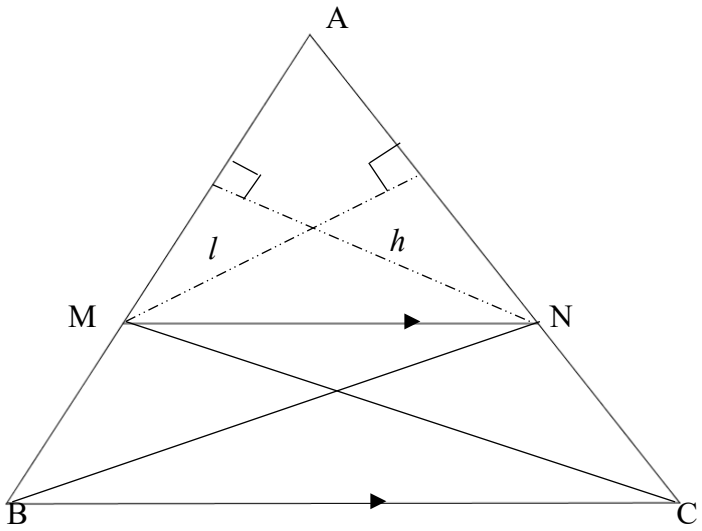
7.1	$\hat{PTQ} = 30^0$	✓ answer / *antwoord*	(1)
7.2	$\frac{PQ}{PT} = \sin P\hat{T}Q$ $PT = \frac{h}{\sin 30^0}$ $= \frac{h}{\frac{1}{2}}$ $= 2h$	✓ correct trig. ratio/ *korrekte trig. verhouding* ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord*	(3)
7.3	$RT^2 = PT^2 + PR^2 - 2.PT.PR.\cos\hat{P}$ $\left(\sqrt{7}h\right)^2 = (2h)^2 + (3h)^2 - 2(2h)(3h).\cos 2x$ $7h^2 = 4h^2 + 9h^2 - 12h^2\cos 2x$ $12h^2\cos 2x = 6h^2$ $\cos 2x = \frac{1}{2}$ $2x = 60^0$ $x = 30^0$	✓ cosine rule of ΔPRT/ *cosinusreël van* ΔPRT ✓ correct substitution/ *korrekte vervanging* ✓ simplification/ *vereenvoudiging* ✓ correct ratio / *korrekte verhouding* ✓ answer / *antwoord*	(5)
			[9]

QUESTION/*VRAAG 8*

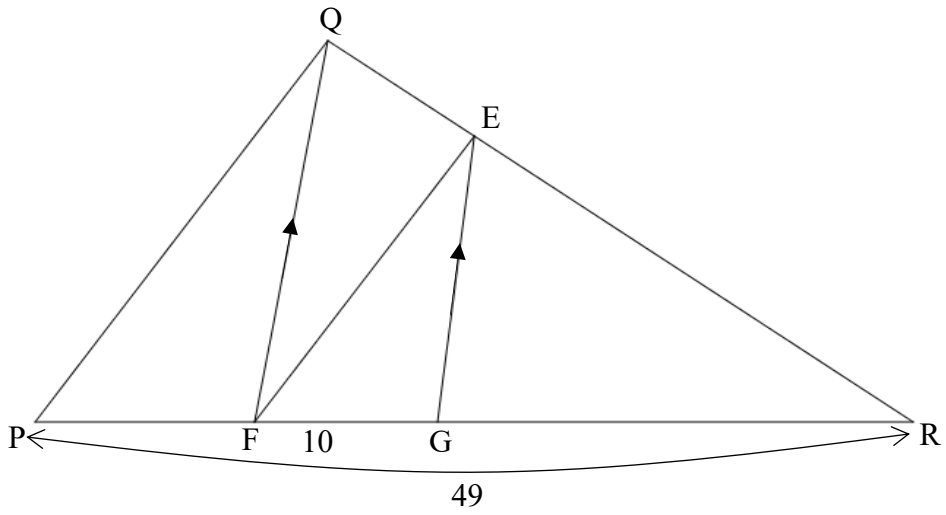


8.1.1	$\hat{O}_1 = 150^0$ [∠ at centre = 2 × ∠ at circumfere nce] [*middelpunts∠ = 2 × omtreks∠*]	✓ S ✓ R	(2)
8.1.2	$\hat{U}_5 = 75^0$ [tan chord theorem] / [*raaklyn-koord stelling*]	✓ S ✓ R	(2)
8.1.3	$\hat{T}_1 = \hat{U}_4$ [∠s opp = sides] / [*∠e teenoor = sye*] $2\hat{T}_1 = 180^0 - 150^0$ [∠s in a Δ] / [*∠e in 'n Δ*] $\hat{T}_1 = 15^0$	✓ S/R ✓ S/R ✓ answer / *antwoord*	(3)
8.1.4	$\hat{U}_5 = \hat{T} = 75^0$ [alt. ∠s, TS∥PK] / [*verw.∠e*, TS∥PK] $\therefore \hat{V} = 105^0$ [opp. ∠s of a cyclic quad] [*teenoorst.∠e van 'n koordevierhoek*]	✓ S/R ✓ S ✓ R	(3)
8.1.5	$\hat{U}_3 + \hat{U}_4 + \hat{U}_5 = \hat{V}$ [tan chord theorem] / [*raaklyn - koord stelling*] $\hat{U}_3 = 15^0$	✓ S ✓ R	(2)
8.1.6	$\hat{U}_5 + \hat{U}_4 = 90^0$ [tan ⊥ rad] / [*raaklyn ⊥ radius*] $\hat{G}_2 = 90^0$ [alt.∠s, TS∥PK] / [*verw.∠e*, TS∥PK]	✓ S ✓ R ✓ answer *antwoord*	(3)
8.2	$TG = GS = \frac{1}{2} \times \sqrt{80} = 2\sqrt{5}$ [line from centre ⊥ to the chord] [*lyn vanaf middelpunt ⊥ op die koord*]	✓ S ✓ R	(2)
			[17]

QUESTION 9 / *VRAAG 9*

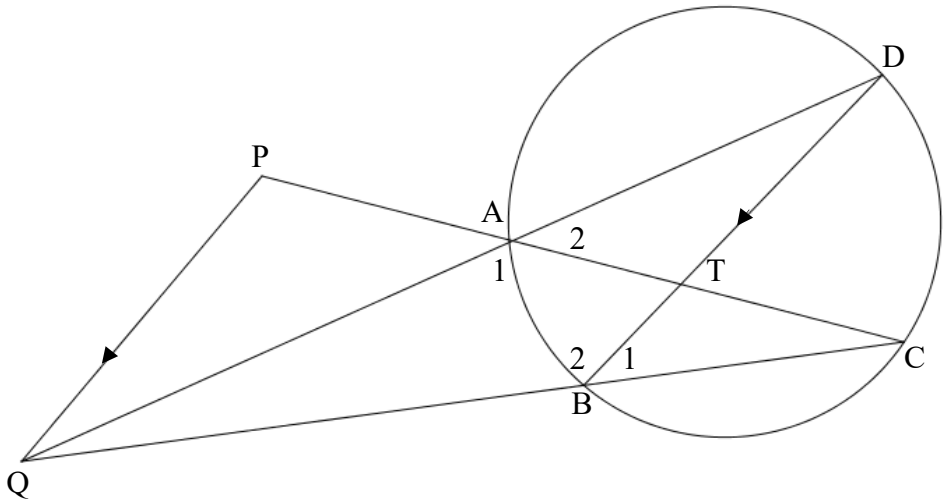


9.1	Construction: Draw ⊥ height (*h)* to AM and ⊥ height (*l)* to AN. Join BN and MC *Konstruksie: Teken ⊥ hoogte(h) na AM en ⊥ hoogte(l) na AN.* *Verbind* BN *en* MC	✓ constructions/ *konstruksies* ✓ S	
	$\frac{Area\ \Delta AMN}{Area\ \Delta MNB} = \frac{\frac{1}{2}\times AM\times h}{\frac{1}{2}\times MB\times h}$	✓ R	
	$= \frac{AM}{MB}$ [same height] / [*dieselfde hoogte*]	✓ S	
	$\frac{Area\ \Delta AMN}{Area\ \Delta NBC} = \frac{\frac{1}{2}\times AN\times l}{\frac{1}{2}\times NC\times l}$		
	$= \frac{AN}{NC}$ [same height] / [*dieselfde hoogte*]	✓ R	
	$Area\ \Delta MNB = Area\ \Delta NBC$ [same base, same parallel lines] [*dieselfde basis*, *dieselfde ewewydige lyne*]		
	$\therefore \frac{AM}{MB} = \frac{AN}{NC}$		(5)

9.2			
9.2.1	$\frac{RG}{FG}=\frac{ER}{QE}$ [line ‖ to one side of a Δ]/[*lyn* ‖ *aan een sy van 'n* Δ] $\frac{RG}{10}=\frac{5}{2}$ $RG=25$ **OR/*OF*** $\frac{QR}{ER}=\frac{FR}{GR}$ [line ‖ to one side of a Δ]/[*lyn* ‖ *aan een sy van 'n* Δ] $\frac{7p}{5p}=\frac{10+GR}{GR}$ $7GR=50+5GR$ $2GR=50$ $GR=25$ **OR/*OF*** $\frac{QE}{QR}=\frac{FG}{FR}$ [line ‖ to one side of a Δ]/[*lyn* ‖ *aan een sy van 'n* Δ] $\frac{2p}{7p}=\frac{10}{FG+GR}$ $\frac{2}{7}=\frac{10}{10+GR}$ $20+2GR=70$ $2GR=50$ $GR=25$	✓ S ✓ R ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ S ✓ R ✓ correct substitution/ *korrekte vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ S ✓ R ✓ correct substitution *korrekte vervanging* ✓ answer / *antwoord*	(4)

9.2.2	$\frac{RF}{RP}=\frac{35}{49}$ $=\frac{5}{7}$ and / *en* $\frac{RE}{QR}=\frac{5}{7}$ $\therefore \frac{RF}{RP}=\frac{RE}{QR}$ $\left[\text{both / } beide = \frac{5}{7}\right]$ $\therefore$ PQ||FE [line divides 2 sides of Δ in proportion]/ [*lyn deel 2 sye van* Δ *eweredig*] [converse prop theorem]/ [*omgekeerde eweredigheidstelling*] [converse line||to one side of a Δ]/ [*omgekeerde lyn* || *aan een sy van 'n* Δ]	✓ correct value of $\frac{RF}{RP}$ *korrekte waarde van* $\frac{RF}{RP}$ ✓ correct value of $\frac{RE}{QR}$ *korrekte waarde van* $\frac{RE}{QR}$ ✓ R	(3)
			[12]

QUESTION 10 / *VRAAG 10*



10.1	$\frac{CT}{PC}=\frac{BC}{QC}$ [line‖ to one side of a Δ]/ [*lyn* ‖ *aan een sy van 'n* Δ] [prop theorem, BT‖QP] [*eweredigheid stelling*, BT ‖ QP] $=\frac{BC}{6BC}$ $=\frac{1}{6}$	✓ S ✓ R ✓ QC in terms of BC/ QC *in terme van* BC	(3)
10.2	$\hat{Q}=\hat{Q}$ [common] / [*gemeen*] $\hat{C}=\hat{D}$ [∠s in same seg] / [∠*e in dies. segment*] $\hat{A}_1=\hat{B}_2$ [3rd ∠s] / [3*de* ∠*e*] ΔQAC|||ΔQBD [∠∠∠] **OR/*OF*** $\hat{Q}=\hat{Q}$ [common] / [*gemeen*] $\hat{C}=\hat{D}$ [∠s in same seg] / [∠*e in dies. segment*] $\hat{A}_1=\hat{B}_2$ [3rd ∠s] / [3*de* ∠*e*] ΔQAC|||ΔQBD [∠∠∠]	✓ S ✓ S ✓ R ✓ R for/*vir* ∠∠∠ **OR / *OF*** ✓ S ✓ S ✓ R ✓ S for 3rd angles *vir* 3de *hoeke*	(4)
10.3	$\frac{QC}{QD}=\frac{QA}{QB}$ [|||Δ*s*] $QD\times QA=QC\times QB$ $=6BC\times 5BC$ $QD.QA=30BC^2$	✓ S ✓ R ✓ $6BC\times 5BC$	(3)
			[10]

TOTAL/*TOTAAL*: 150