basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/
NASIONALE SENIOR SERTIFIKAAT

GRADE/*GRAAD* 12

MATHEMATICS P2/*WISKUNDE V2*

SEPTEMBER 2021(2)

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

These marking guidelines consist of 24 pages.
Hierdie nasienriglyne bestaan uit 24 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 the question, mark the crossed out version.
- Consistent accuracy applies in ALL aspects of the marking memorandum. Stop marking at the second calculation error.
- Assuming answers/values in order to solve a problem is NOT acceptable.

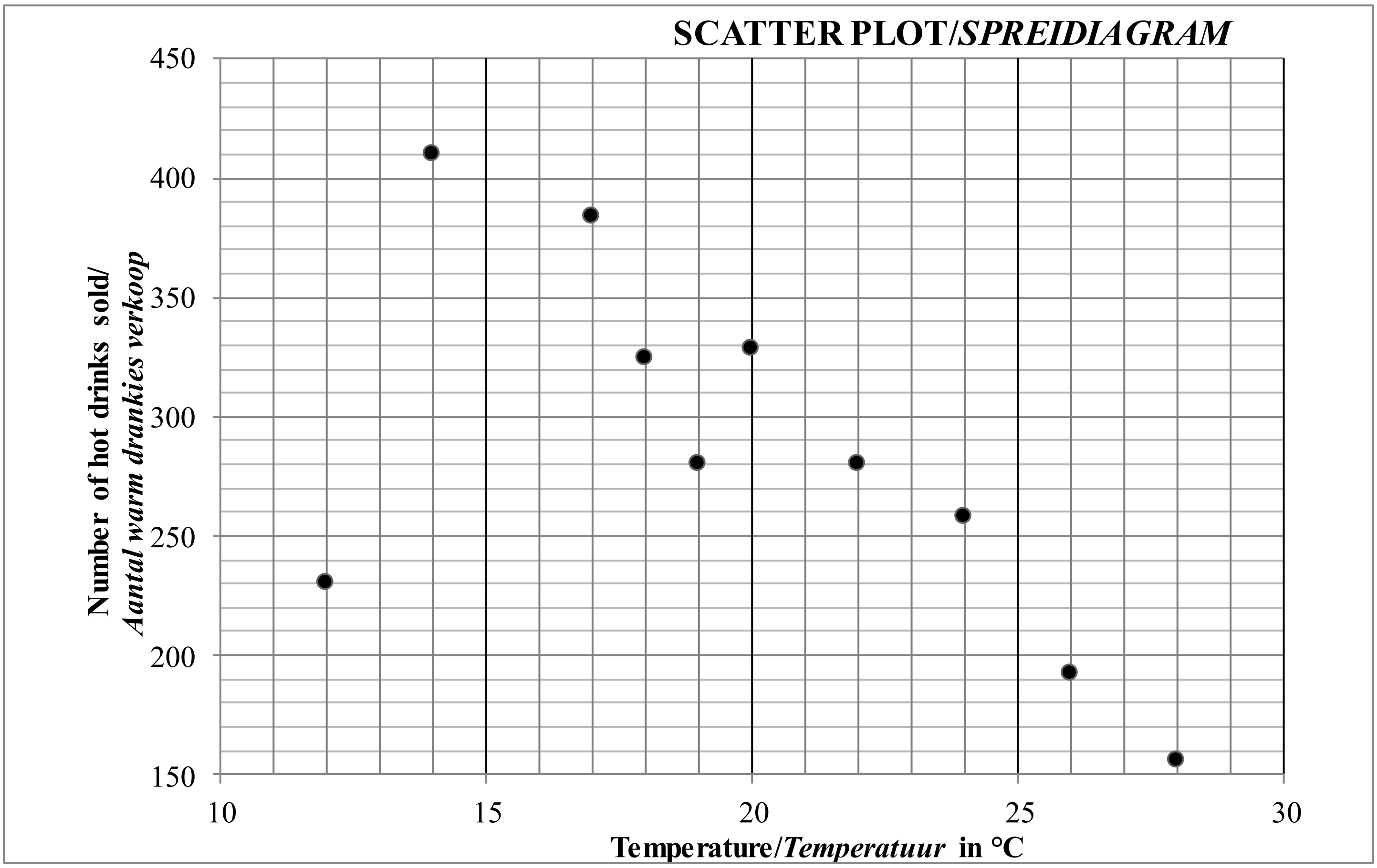
NOTA:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, merk slegs die EERSTE poging.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek en nie oordoen nie, sien die doodgetrekte poging na.*
- *Volgehoue akkuraatheid word in ALLE aspekte van die memorandum toegepas. Hou op nasien by die tweede berekeningsfout.*
- *Om antwoorde/waardes te aanvaar om 'n probleem op te los, word NIE toegelaat nie.*

GEOMETRY • *MEETKUNDE*	
S	**A mark for a correct statement (A statement mark is independent of a reason)**
	'n Punt vir 'n korrekte bewering ('n Punt vir 'n bewering is onafhanklik van die rede)
R	**A mark for the correct reason (A reason mark may only be awarded if the statement is correct)**
	'n Punt vir 'n korrekte rede ('n Punt word slegs vir die rede toegeken as die bewering korrek is)
S/R	**Award a mark if statement AND reason are both correct**
	Ken 'n punt toe as die bewering EN rede beide korrek is

QUESTION/*VRAAG 1*

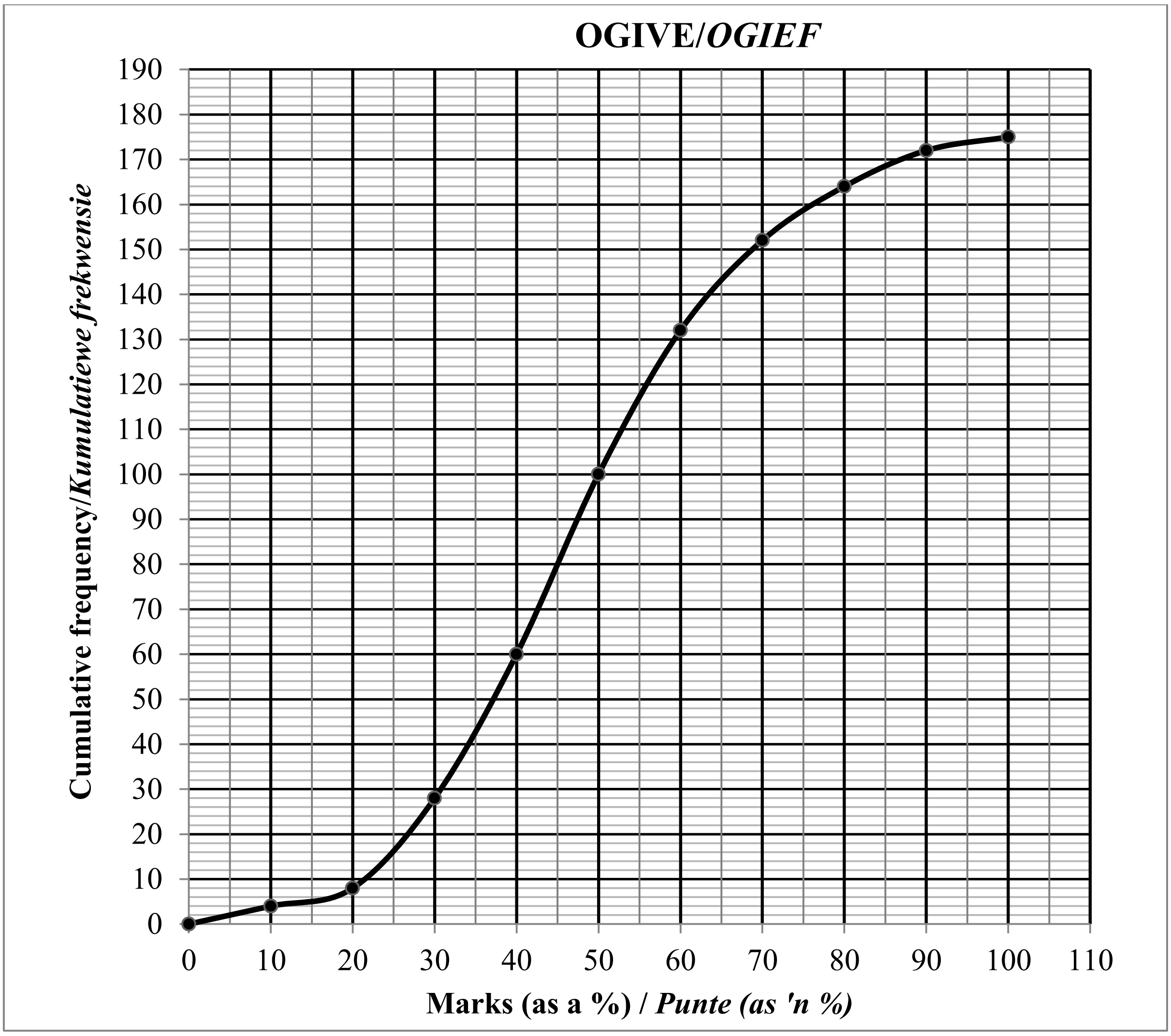
Temperature/ *Temperatuur* (in °C)	14	24	26	18	20	28	22	17	12	19
Number of hot drinks sold *Aantal warm drankies verkoop*	410	258	192	324	328	156	280	384	230	280



1.1	As the temperature increases the number of hot drinks sold decreases. / *Soos die temperatuur toeneem, neem die verkope van die warm drankies af.* **OR** As the temperature decreases the number of hot drinks sold increases. / *Soos die temperatuur afneem, neem die verkope van die warm drankies toe.*	✓ answer (1)
1.2	$a = 489,47$ $b = -10,37$ $\hat{y} = 489,47 - 10,37x$	✓ value of *a* ✓ value of *b* ✓ equation (3)

1.3	$\hat{y} = 489,47 - 10,37x$ $= 489,47 - 10,37(17)$ $= 313,18$ Number of hot drinks sold $= 314$ Number of litres of milk $= \frac{314}{8}$ $= 39,25$ $= 40$ boxes of 1ℓ	✓substitution ✓ 314 (accept 313) ✓ answer as N_0 (3)
1.4	The outlier is the point (12; 230).	✓(12; 230) (1)
		[8]

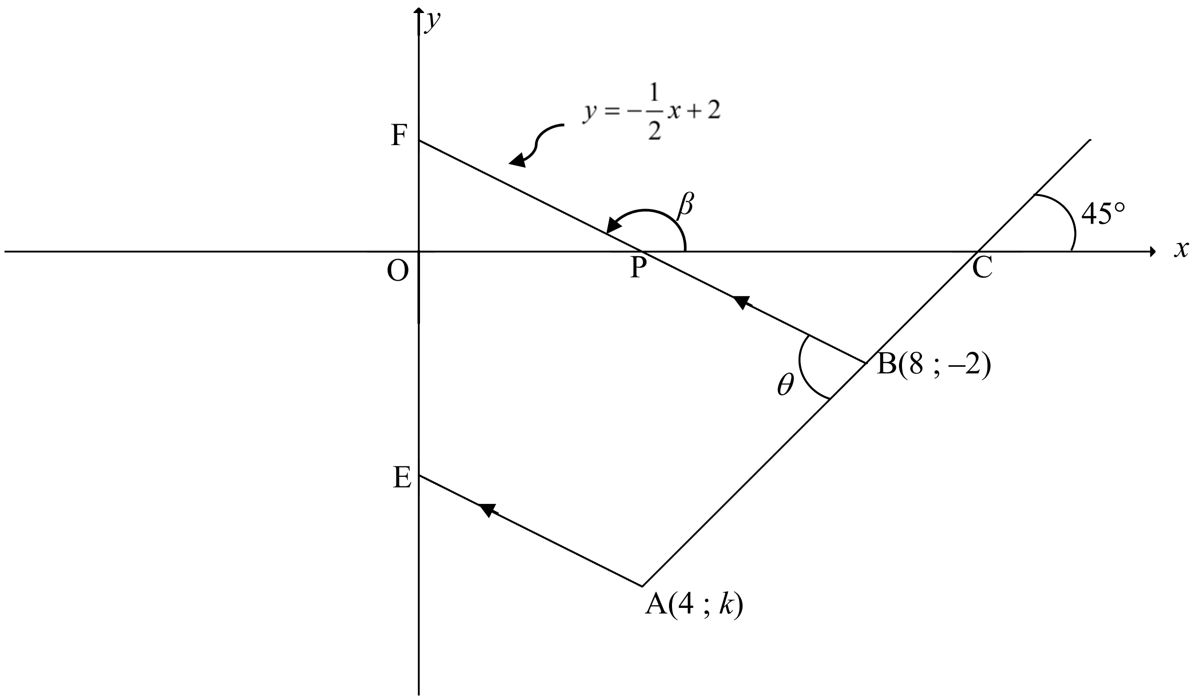
QUESTION/*VRAAG* 2



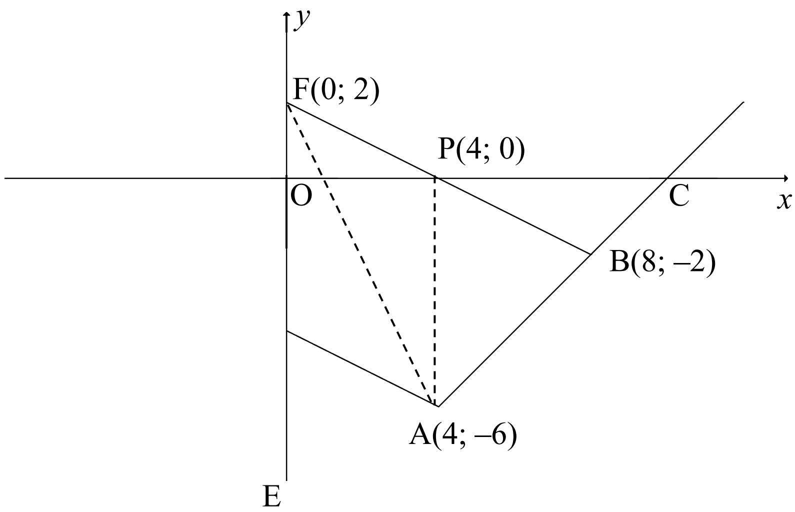
2.1.1	175	✓ answer (1)
2.1.2	$40 \le x < 50$ **OR** $40 < x \le 50$	✓ answer (1)
2.1.3	175 – 158 = 17	✓ 158 (accept 156 to 160) ✓ answer (accept 15 to 19) (2)
2.2.1	$\bar{x} = 74{,}87$	✓✓answer (2)
2.2.2	$\sigma = 16{,}12$	✓ answer (1)
2.2.3	$\bar{x} + \sigma = 74{,}87 + 16{,}12 = 90{,}99$ 3 learners	✓ 90,99 ✓ answer (2)

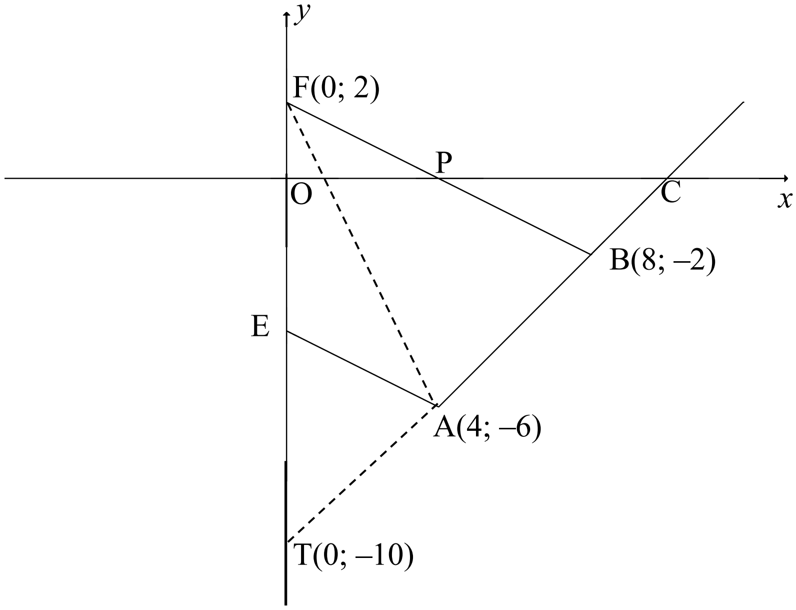
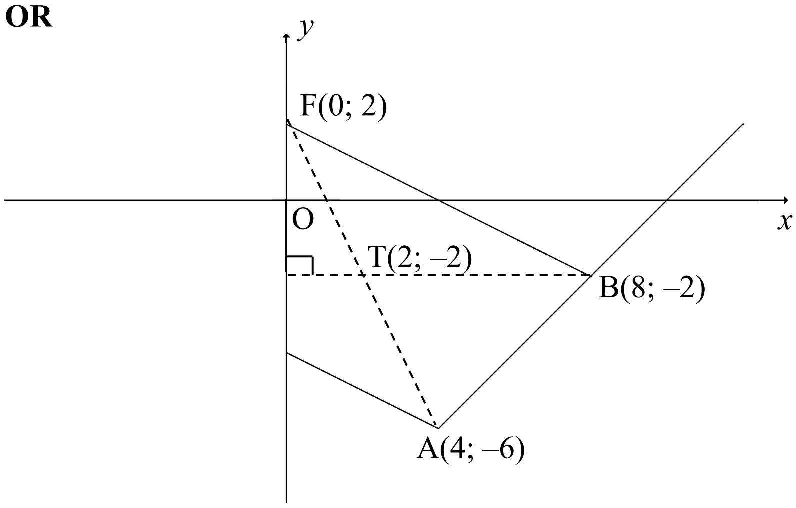
2.3	$\bar{x}-\sigma=82,7$ $\bar{x}+\sigma=94,1$ $2\bar{x}=176,8$ $\bar{x}=88,4$ $\sigma=88,4-82,7$ OR $\sigma=94,1-88,4$ $\sigma=5,7$ $\sigma=5,7$ **OR** $\bar{x}=\frac{82,7+94,1}{2}$ $\bar{x}=88,4$ $\sigma=88,4-82,7$ OR $\sigma=94,1-88,4$ $\sigma=5,7$ $\sigma=5,7$	✓✓ $\bar{x}=88,4$ ✓ answer (3) ✓✓ $\bar{x}=88,4$ ✓ answer (3)
		[12]

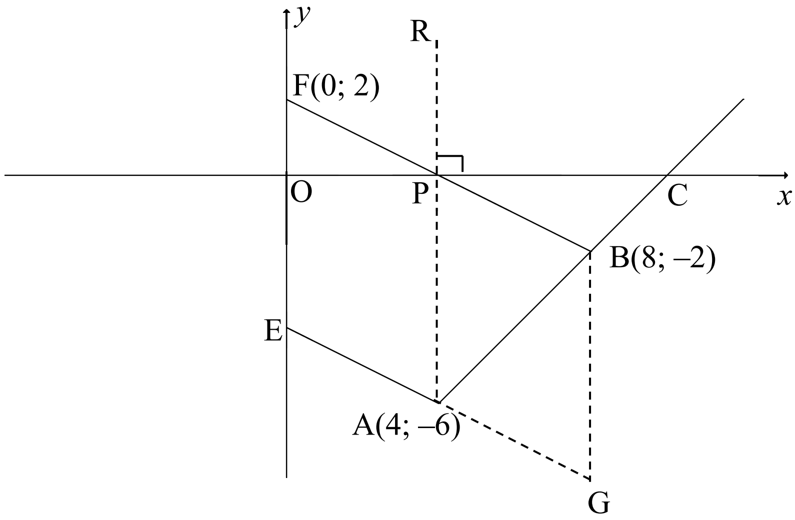
QUESTION/*VRAAG* 3

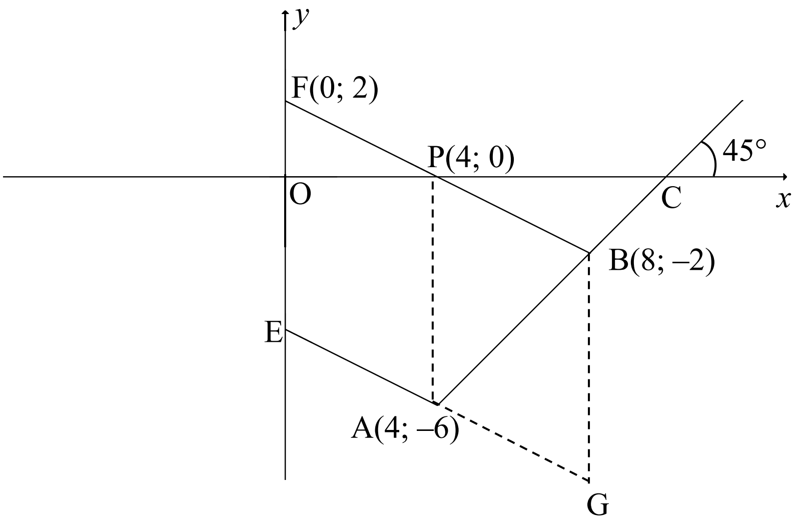


3.1	$m_{AB}=\tan 45°=1$	✓ $m_{AB}=\tan 45°=1$ (1)
3.2	$y=x+c$ $-2=8+c$ $c=-10$ $y=x-10$ $k=4-10$ $k=-6$ **OR** $\tan\theta=m_{AB}$ $1=\frac{k-(-2)}{4-8}$ $\frac{k+2}{-4}=1$ $k=-4-2$ $k=-6$	✓equation of AB ✓ substitute A in equation (2) ✓ substitute A & B into gradient formula ✓ equate to 1 (2)

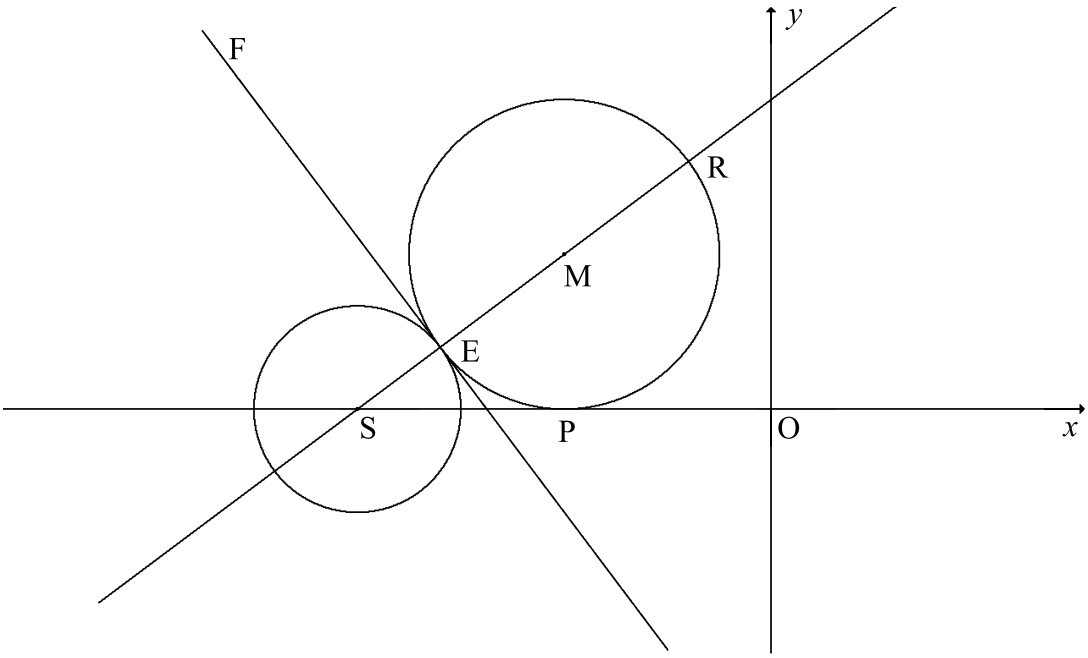
3.3	$m_{FB} = m_{EA} = -\frac{1}{2}$ [FB ∥ EA] $y = -\frac{1}{2}x + c$ $-6 = -\frac{1}{2}(4) + c$ **OR** $y - y_1 = -\frac{1}{2}(x - x_1)$ $y - (-6) = -\frac{1}{2}(x - 4)$ $\therefore y = -\frac{1}{2}x - 4$	✓ $m_{EA} = -\frac{1}{2}$ ✓ substitution of $(4;\ -6)$ ✓equation (3)
3.4.1	$\tan\beta = -\frac{1}{2}$ $\beta = 153{,}43°$ $\theta = 26{,}565° + 45°$ [ext $<$ of Δ] $= 71{,}57°$	✓ $\tan\beta = -\frac{1}{2}$ ✓ value of β ✓ value of θ (3)
3.4.2	$F(0;2)$ $B(8;-2)$ $BF = \sqrt{(8-0)^2 + (-2-2)^2}$ $BF = \sqrt{80} = 4\sqrt{5}$	✓ $F(0;2)$ ✓substitution ✓ answer (3)
3.4.3	 $0 = -\frac{1}{2}x + 2$ $x = 4$ $\therefore P(4;\ 0)$ $\therefore$ PA ∥ y-axis Area ΔABF = area ΔABP + area ΔAPF Area $\Delta ABF = \frac{1}{2}(6)(4) + \frac{1}{2}(6)(4)$ Area $\Delta ABF = 24\ \text{units}^2$ **OR**	✓ P(4; 0) ✓ area of ΔABP ✓ area of ΔAPF ✓ answer (4)

	 $y = x + c$ $-2 = 8 + c$ $c = -10$ $\therefore$ T(0; –10) Area ΔABF = area ΔFBT − area ΔAFT Area $\Delta ABF = \frac{1}{2}(8)(12) - \frac{1}{2}(12)(4)$ Area ΔABF = 24 units^2	✓ C(0; –10) ✓ area of ΔABT ✓ area of ΔAFT ✓ answer (4)
	OR  $m_{AF} = \frac{-6-2}{4-0} = -2 \quad \therefore\ y = -2x + 2$ $-2 = -2x + 2$ $x = 2 \quad \therefore$ T(2; – 2) Area ΔABF = area ΔFTB + area ΔTBA Area $\Delta ABF = \frac{1}{2}(6)(4) + \frac{1}{2}(6)(4)$ Area ΔABF = 24 units^2 **OR**	✓ T(2; –2) ✓ area of ΔFTB ✓ area of ΔTBA ✓ answer (4)

	$A(4;-6)$ $B(8;-2)$ $AB=\sqrt{(8-4)^2+(-2-(-6))^2}$ $AB=\sqrt{32}=4\sqrt{2}$ Area of $ABF=\frac{1}{2}(AB)(BF)\sin A\hat{B}F$ $=\frac{1}{2}(\sqrt{32})(\sqrt{80})\sin 71{,}57°$ $=24\text{units}^2$	✓ $AB=\sqrt{32}=4\sqrt{2}$ ✓ area formula ✓ substitution into area formula ✓ answer (4)
3.5	 RA ∥ y-axis $C\hat{P}B=26{,}57°$ $R\hat{P}B=90°+26{,}57°$ $R\hat{P}B=116{,}57°$ PB ∥ AG $\therefore P\hat{A}G=R\hat{P}B=116{,}57°$ [corresp ∠s; PB ∥ AG] **OR** $O\hat{F}P=153{,}43°-90°$ [ext ∠ of Δ] $O\hat{F}P=63{,}43°$ $F\hat{E}A=180°-63{,}43°$ [co-interior ∠ s; FB ∥ EA] $=116{,}57°$ $P\hat{A}G=116{,}57°$ [corresp ∠ s; FE ∥ PA]	✓ $C\hat{P}B=26{,}57°$ ✓ $R\hat{P}B=90°+C\hat{P}B$ ✓ $R\hat{P}B$ ✓ answer of $P\hat{A}G$ (4) ✓ $O\hat{F}P=63{,}43°$ ✓ $F\hat{E}A=180°-63{,}43°$ ✓ $=116{,}57°$ ✓ answer of $P\hat{A}G$ (4)

	 PA ∥ y-axis $P\hat{C}A = 45°$ [vert opp ∠s =] $P\hat{A}C = 45°$ [∠s of Δ] PA ∥ BG $B\hat{A}G = \theta = 71{,}57°$ [alt ∠s; PA ∥ BG] $P\hat{A}G = 45° + 71{,}57°$ $P\hat{A}G = 116{,}57°$	✓ $A\hat{P}C = 90°$ OR AP = PC ✓ $P\hat{A}C = 45°$ ✓ $B\hat{A}G = \theta = 71{,}57°$ ✓ answer of $P\hat{A}G$ (4)
		[20]

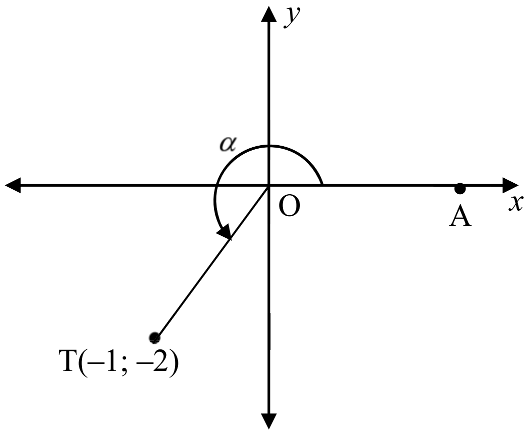
QUESTION/*VRAAG* 4



4.1.1	S(–8 ; 0)	✓ x-value ✓ y-value (2)
4.1.2	$r = 2$ $\therefore$ diameter = 4 units	✓ $r = 2$ (1)
4.2.1	ER = 6 units EM = 3 units	✓ length of ER ✓ answer (2)
4.2.2	$S(-8;0)\ ;R\left(-\frac{8}{5}\ ;\ \frac{24}{5}\right)$ $m_{SR} = \frac{0-(\frac{24}{5})}{-8-(-\frac{8}{5})}$ $= \frac{3}{4}$ $m_{FE} = \frac{-4}{3}$ [tan ⊥ rad]	✓ substitution ✓ m_{SM} ✓ answer (3)
4.2.3	EM = MP = 3 units [radii] SM = 5 units $SP^2 = 5^2 - 3^2$ [Pythagoras] SP = 4 units $\therefore$ P(–4; 0) $\therefore$ M(–4; 3)	✓ MP = 3 units ✓ length of SM ✓ length of SP ✓ coordinates of M (4)

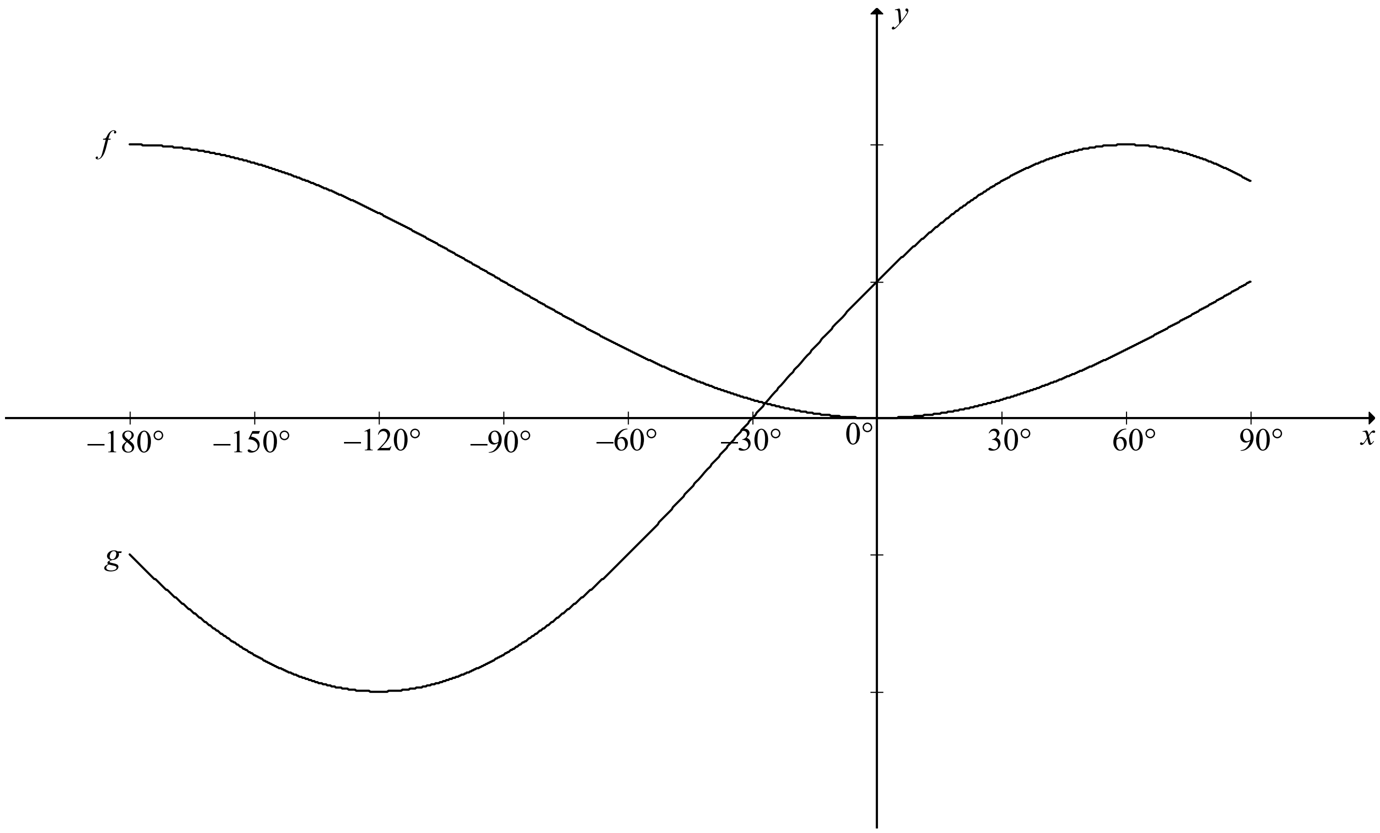
4.2.4	$\frac{x+\left(-\frac{8}{5}\right)}{2} = -4$ and $\frac{y+\frac{24}{5}}{2} = 3$ $x = \frac{-32}{5}$ $y = \frac{6}{5}$ $\therefore \text{E}\left(\frac{-32}{5};\frac{6}{5}\right)$ **OR** By translation: $\text{E}\left(\frac{-32}{5};\frac{6}{5}\right)$	✓ x_E ✓ y_E (2) ✓ x_E ✓ y_E (2)
4.3	$\text{K}(-5;-3)$ $\text{SK} = \sqrt{(-8-(-5))^2+(0-(-3))^2}$ $\text{SK} = \sqrt{18}$ $\text{SK} = 3\sqrt{2}$ SK > 3 (radius of circle) $\therefore$ S lies outside the circle	✓ x-value ✓y-value ✓ substitution ✓ length of SK ✓ conclusion (5)
		[19]

QUESTION/*VRAAG* 5

5.1.1	 $\tan\alpha = \frac{-2}{-1} = 2$	✓answer (1)
5.1.2	$OT = \sqrt{(-1)^2 + (-2)^2} = \sqrt{5}$ $\cos\alpha = \frac{-1}{\sqrt{5}}$	✓ $OT = \sqrt{5}$ ✓ answer (2)
5.1.3	$\cos(\alpha + 45°)$ $= \cos\alpha\cos 45° - \sin\alpha\sin 45°$ $= \left(\frac{-1}{\sqrt{5}}\right)\left(\frac{\sqrt{2}}{2}\right) - \left(\frac{-2}{\sqrt{5}}\right)\left(\frac{\sqrt{2}}{2}\right)$ $= \frac{-\sqrt{2} + 2\sqrt{2}}{2\sqrt{5}}$ $= \frac{\sqrt{2}}{2\sqrt{5}}$ **OR** $\cos(\alpha + 45°)$ $= \cos\alpha\cos 45° - \sin\alpha\sin 45°$ $= \left(\frac{-1}{\sqrt{5}}\right)\left(\frac{1}{\sqrt{2}}\right) - \left(\frac{-2}{\sqrt{5}}\right)\left(\frac{1}{\sqrt{2}}\right)$ $= \frac{-1+2}{\sqrt{10}}$ $= \frac{1}{\sqrt{10}}$	✓expansion ✓ substitution of sin α ✓ special angle ratios ✓answer (4) ✓expansion ✓ substitution of sin α ✓ special angle ratios ✓answer (4)

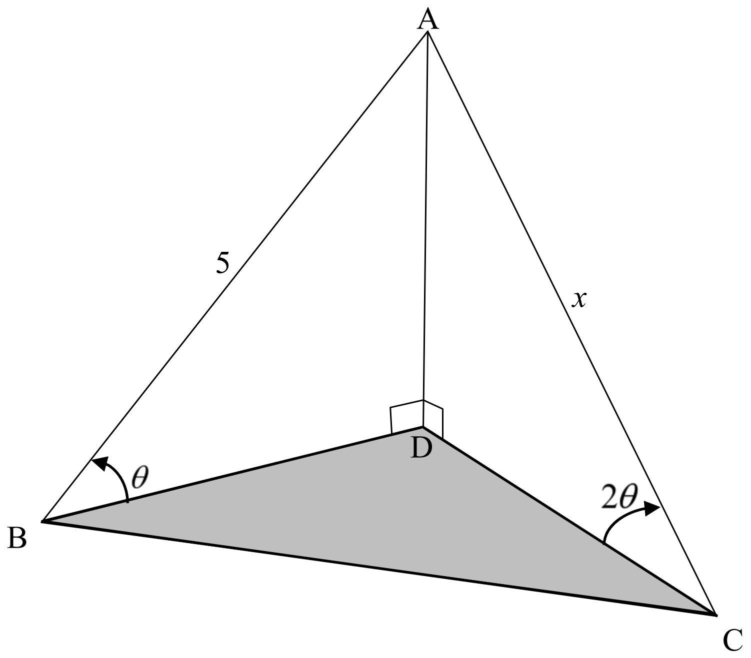
5.2	$2\sin(-20°).\sin 160° - \cos 40°$ $= 2(-\sin 20°).\sin 20° - \cos 40°$ $= -2\sin^2 20° - (1 - 2\sin^2 20°)$ $= -1$	✓ $-\sin 20°$ ✓ $\sin 20°$ ✓ $1 - 2\sin^2 20°$ ✓answer (4)
5.3.1	$3\cos x.\sin x + \tan x.\cos^2(180° - x)$ $= 3\cos x.\sin x + \tan x.(-\cos x)^2$ $= 3\cos x.\sin x + \dfrac{\sin x}{\cos x}.\cos^2 x$ $= 4\cos x.\sin x$ $= 2\sin 2x$	✓ reduction ✓ identity ✓ simplification ✓ single ratio (4)
5.3.2	$y \in [-2\ ;\ 2]$	✓critical values ✓ notation (2)
5.4	$\dfrac{\cos 3x}{\cos x} = 4\cos^2 x - 3$ LHS$= \dfrac{\cos 3x}{\cos x} = \dfrac{\cos(2x + x)}{\cos x}$ $= \dfrac{\cos 2x \cos x - \sin 2x \sin x}{\cos x}$ $= \dfrac{(2\cos^2 x - 1)\cos x}{\cos x} - \dfrac{2\sin x \cos x \sin x}{\cos x}$ $= 2\cos^2 x - 1 - 2\sin^2 x$ $= 2\cos^2 x - 1 - 2(1 - \cos^2 x)$ $= 2\cos^2 x - 1 - 2 + 2\cos^2 x$ $= 4\cos^2 x - 3$ $=$ RHS	✓ compound identity ✓ $2\cos^2 x - 1$ ✓ $2\sin x \cos x$ ✓ $1 - \cos^2 x$ ✓expansion (5)
5.5	$3^{2\tan x} - 3^{\tan x + 1} = 54$ $3^{2\tan x} - 3.3^{\tan x} - 54 = 0$ $(3^{\tan x} - 9)(3^{\tan x} + 6) = 0$ $3^{\tan x} = 3^2$ or $3^{\tan x} = -6$ $\tan x = 2$ no solution $\therefore x = 63{,}43° + k.180°;\ k \in Z$ **OR** $\therefore x = 63{,}43° + k.360°;\ k \in Z$ or $x = 243{,}43° + k.360°;\ k \in Z$	✓ standard from ✓ factors ✓ both equations ✓ $\tan x = 2$ ✓ $x = 63{,}43° + k.180°;\ k \in Z$ (5) **OR** ✓ $x = 63{,}43° + k.360°;\ k \in Z$ & $243{,}43° + k.360°;\ k \in Z$ (5)
		[27]

QUESTION/*VRAAG* 6



6.1.1	$x \in [-30° ; 90°]$	✓endpoints ✓notation (2)
6.1.2	$x = -180°$ or $-60°$	✓ $-180°$ ✓ $-60°$ (2)
6.2	$f(x) = -\cos(x + 90°) + 1$ $= \sin x + 1$	✓ $\cos(x + 90°)$ ✓ answer (2)
		[6]

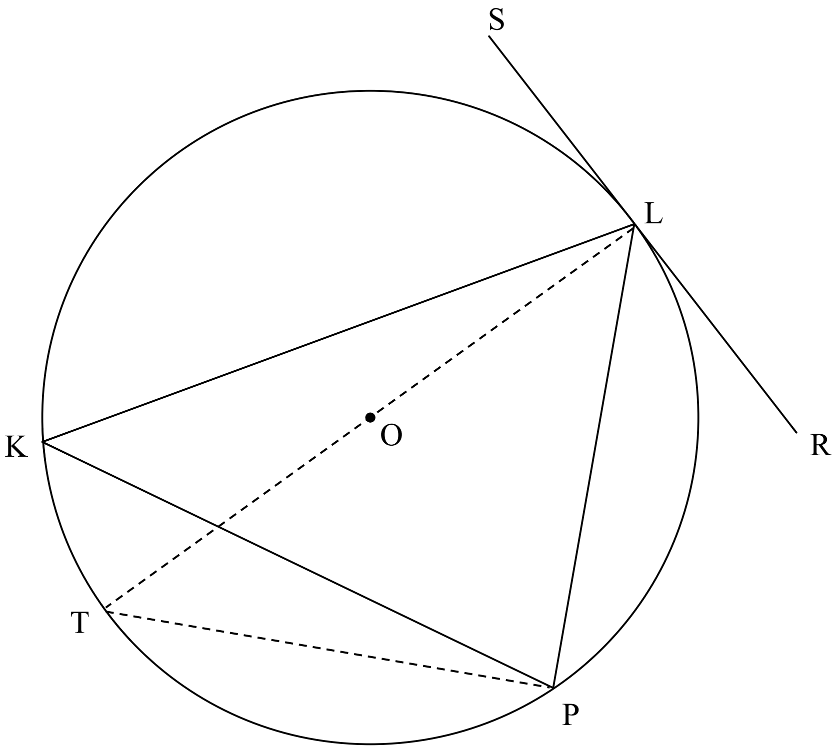
QUESTION/*VRAAG* 7



7.1	$\sin\theta = \frac{AD}{5}$ $AD = 5\sin\theta$ $\sin 2\theta = \frac{AD}{x}$ $AD = x\sin 2\theta$ $= x.2\sin\theta\cos\theta$ $x.2\sin\theta\cos\theta = 5\sin\theta$ $x = \frac{5\sin\theta}{2\sin\theta\cos\theta}$ $= \frac{5}{2\cos\theta}$	✓ trig ratio ✓ trig ratio ✓ $2\sin\theta\cos\theta$ ✓ equating AD ✓ x as subject (5)
7.2	$BC^2 = 5^2 + \left(\frac{5}{2\cos 30°}\right)^2 - 2(5)\left(\frac{5}{2\cos 30°}\right).\cos 112°$ $= 44{,}147$ $BC = 6{,}64$ units	✓ use area rule correctly ✓ substitution ✓answer (3)
		[8]

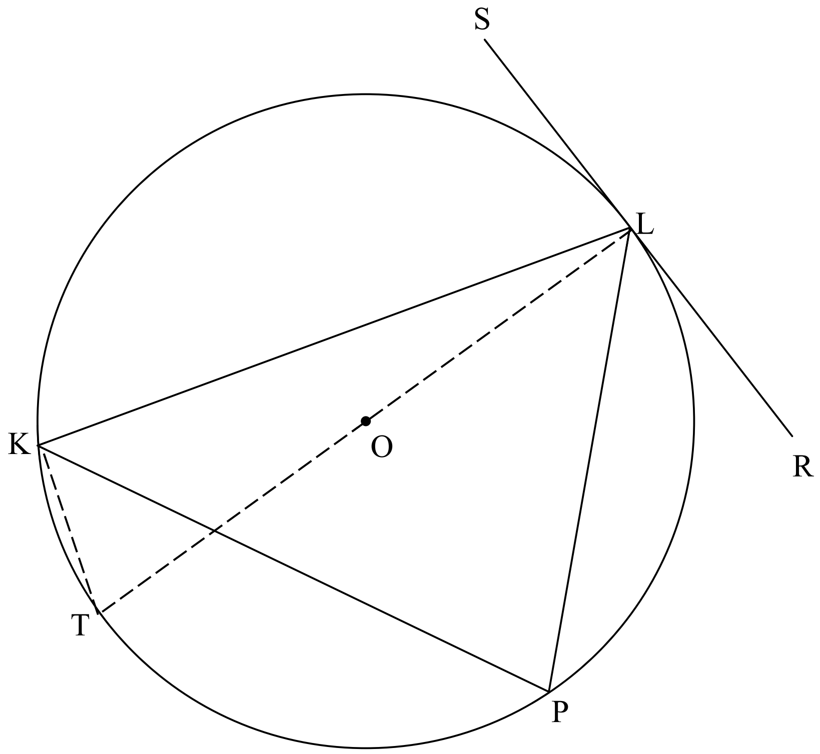
QUESTION/*VRAAG 8*

8.1



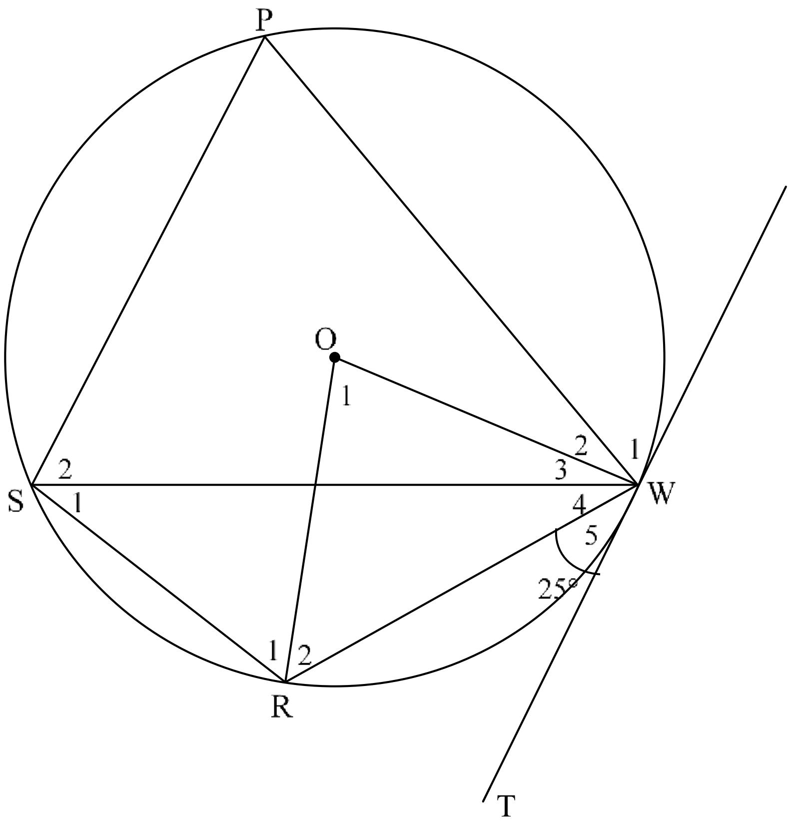
8.1	Construction: Draw diameter LT and draw TP *Konstruksie: Trek middellyn* LT *en verbind* TP $S\hat{L}K = 90° - T\hat{L}K$ [radius ⊥ tangent/*raaklyn*] $T\hat{P}L = 90°$ [∠ in semi-circle/*semi-sirkel*] $\therefore K\hat{P}L = \hat{P} = 90° - T\hat{P}K$ $= 90° - T\hat{L}K$ [∠s same segment/∠*e dieselfde segment*] $\therefore S\hat{L}K = \hat{P}$	✓Constr ✓S ✓R ✓S /R ✓S ✓R (6)

OR



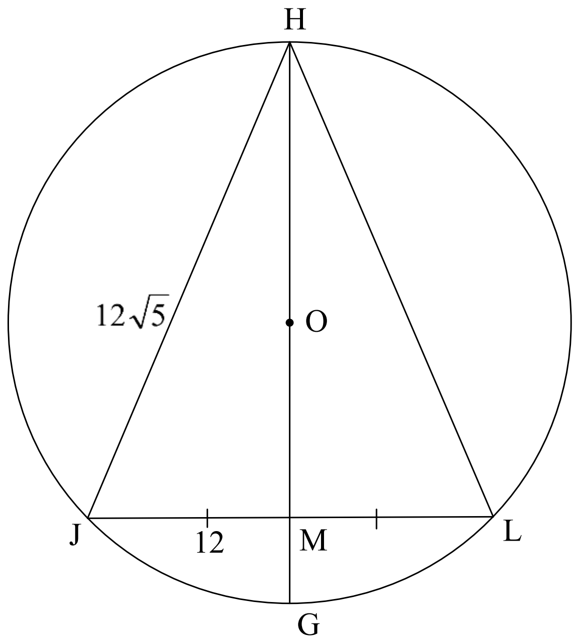
8.1	Construction: Draw diameter LT and draw KT *Konstruksie: Trek middellyn LT en verbind KT* $S\hat{L}K = 90° - T\hat{L}K$ [radius ⊥ tangent/*raaklyn*] $L\hat{K}T = 90°$ [∠ in half circle/*semi-sirkel*] $\therefore \hat{P} = K\hat{T}L$ [∠s same segment/*∠e dieselfde segment*] $= 90° - T\hat{L}K$ $\therefore S\hat{L}K = \hat{P}$	✓ construction ✓ S /R ✓ S✓ R ✓ S ✓ S / R (6)

8.2



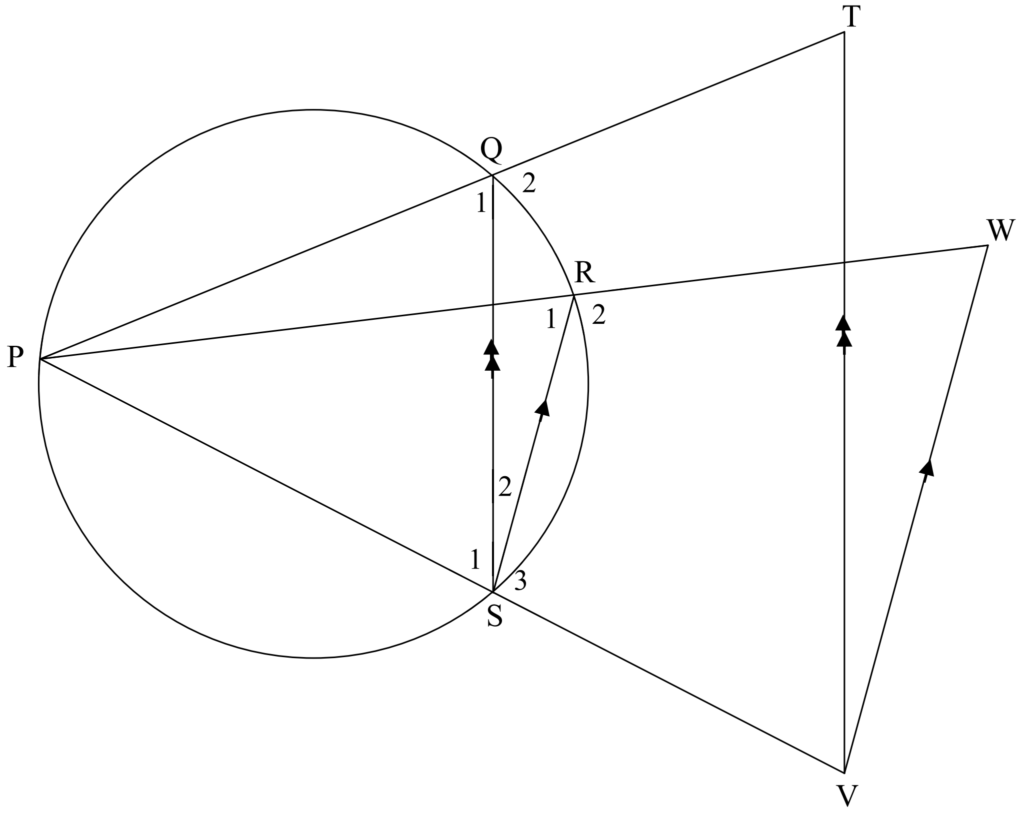
8.2.1(a)	$\hat{S}_1 = 25°$ [tan chord theorem/ ∠ *tussen raaklyn en koord*]	✓S ✓R (2)
8.2.1(b)	$\hat{O}_1 = 50°$ [∠ at centre = 2×∠ at circumference / *midpts.* ∠ *= 2 × omtreks* ∠]	✓S ✓R (2)
8.2.1(c)	$\hat{R}_2 = \hat{W}_3 + \hat{W}_4 = 65°$ [∠s opp = radii / ∠*e teenoor = radiusse*] $\hat{P} = 60°$ [∠s of equilateral Δ / ∠*e van gelyksydige* Δ] $\hat{R}_1 = 55°$ [opp ∠ of cyclic quad / teenoorst. ∠*e van kvh*]	✓ S ✓ R ✓ S / R ✓ S ✓ R (5)
8.2.2	$\hat{W}_1 = \hat{S}_2 = 60°$ [tan chord theorem / ∠ *tussen en koord*] $\hat{P} = 60°$ [∠s of equilateral Δ /∠*e van gelyksydige* Δ] $\therefore \hat{W}_1 = \hat{P} = 60°$ SP || TW [alt ∠s = / *verwisselende* ∠*e gelyk*]	✓ S / R ✓ S ✓ R (3)

8.3



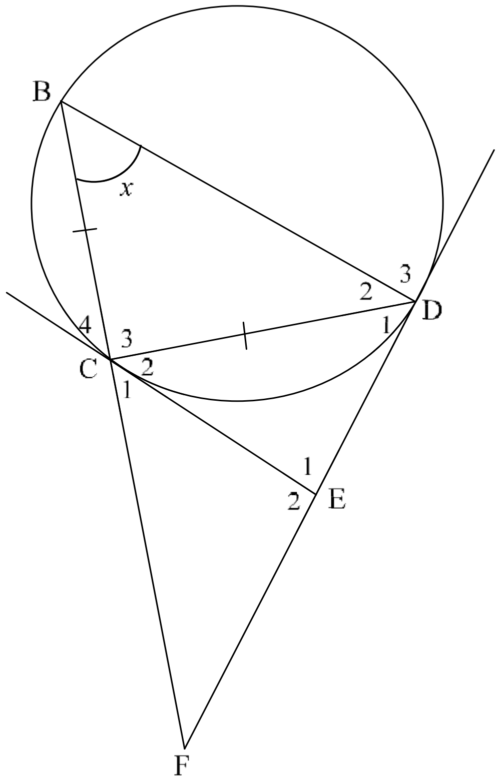
8.3.1	OG = $x + 6$ $\therefore$ HM = $2x + 6$	✓ S ✓ S (2)
8.3.2	OM $\perp$ JL [line from centre to midp of chord/*lyn van midpt halv kd*] $OJ^2 = JM^2 + OM^2$ [Pythagoras] $(x+6)^2 = 12^2 + x^2$ $x^2 + 12x + 36 = 144 + x^2$ $x = 9$ $r = 15$ units **OR** OM $\perp$ JL [line from centre to midp of chord/*lyn van midpt halv kd*] $HJ^2 = HM^2 + JM^2$ [Pythagoras] $(12\sqrt{5})^2 = (2x+6)^2 + 12^2$ $720 = 4x^2 + 24x + 36 + 144$ $0 = 4x^2 + 24x - 540$ $0 = x^2 + 6x - 135$ $0 = (x-9)(x+15)$ $x = 9$ $r = 15$ units	✓ S ✓R ✓ subst into Pyth ✓ value of x ✓ length of radius (5) ✓ S ✓R ✓ subst into Pyth ✓ value of x ✓ radius (5)
		[25]

QUESTION/*VRAAG* 9



9.1	$\frac{TQ}{QP}=\frac{VS}{SP}$ [Prop Th , TV || QS / *Lyn || een sy van* Δ] $\frac{VS}{SP}=\frac{WR}{RP}$ [Prop Th , RS || VW / *Lyn || een sy van* Δ] $\therefore \frac{TQ}{QP}=\frac{WR}{RP}$	✓S ✓ R ✓ S/R (3)
9.2	$\hat{Q}_1=\hat{R}_1$ [∠s in the same segment / *∠e in dieselfde sirkel segment*] $\hat{R}_1=\hat{W}$ [corres ∠s, RS || VW / *ooreenkomstige ∠e,* RS || VW] $\therefore \hat{Q}_1=\hat{W}$ $\hat{Q}_1=\hat{T}$ [corres ∠s ,TV || QS / *ooreenkomstige ∠e,* TV || QS] $\therefore \hat{T}=\hat{W}$ ∴ TPVW is a cyclic quad [converse ∠s in the same segment / *lyn onderspan gelyke hoeke*]	✓S ✓R ✓S/R ✓S ✓R (5)
		[8]

QUESTION/*VRAAG* 10



10.1.1	$\hat{D}_1 = x$ [tan chord theorem / ∠ *tussen en raaklyn koord*] $\hat{C}_2 = \hat{D}_1 = x$ [Tans from common pt / *Rklyne vanuit dies punt*] $\hat{E}_1 = 180° - 2x$ [sum of int ∠s Δ; ∠*e* Δ] **OR** $\hat{D}_1 = x$ [tan chord theorem / *raaklyn koordst.*] $\hat{C}_2 = x$ [tan chord theorem / *raaklyn koordst.*] $\hat{E}_1 = 180° - 2x$ [sum of int ∠s Δ; ∠*e* Δ]	✓ S ✓ R ✓ S✓ R ✓ R (5) ✓ S ✓ R ✓ S✓ R ✓ R (5)
10.1.2	In ΔECD and ΔCBD $\hat{C}_2 = \hat{B} = x$ [tan chord theorem / *raaklyn koordst.*] $\hat{D}_2 = \hat{B} = x$ [∠s opp equal sides / ∠ *teenoor gelyke sye*] $\therefore \hat{D}_1 = \hat{D}_2 = x$ $\therefore$ ΔECD ||| ΔCBD [∠, ∠, ∠] **OR** In ΔECD and ΔCBD $\hat{C}_2 = \hat{B} = x$ [tan chord theorem / *raaklyn koordst.*] $\hat{D}_2 = \hat{B} = x$ [∠s opp equal sides / ∠ *teenoor gelyke sye*] $\therefore \hat{D}_1 = \hat{D}_2 = x$ $\hat{E}_1 = \hat{C}_3$ [3rd ∠ of Δ / ∠*e* Δ] $\therefore$ ΔECD ||| ΔCBD	✓ S / R ✓ S ✓ R (3) ✓ S / R ✓ S ✓ S (3)

10.2.1	$\frac{EC}{BC}=\frac{CD}{BD}=\frac{ED}{CD}$ [ΔECD ||| ΔCBD] $\frac{CD}{BD}=\frac{ED}{CD}$ $CD^2 = ED.BD$ $ED = CE$ $\therefore CD^2 = CE.BD$	✓ S ✓ $CD^2 = ED.BD$ ✓ ED = CE (3)
10.2.2	$\hat{C}_2 = \hat{D}_2 = x$ [proven / *reeds bewys*] BD || CE [alt ∠s = / *verwisselende* ∠ *gelyk*] $\therefore \frac{FE}{DE}=\frac{FC}{CB}$ [line || one side of Δ / *lyn* || *een sy van* Δ] $\therefore \frac{CF^2}{EF^2}=\frac{CB^2}{DE^2}$ $\therefore \frac{CF^2}{EF^2}=\frac{DE.BD}{DE^2}$ [CB = CD] $\therefore \frac{CF^2}{EF^2}=\frac{BD}{DE}$	✓ S ✓ R ✓ S ✓ R ✓ squaring ✓ subst $CD^2 = ED.BD$ (6)
		[17]

TOTAL/*TOTAAL*: 150