basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE EXAMINATIONS/
SENIORSERTIFIKAAT-EKSAMEN
NATIONAL SENIOR CERTIFICATE EXAMINATIONS/
NASIONALE SENIORSERTIFIKAAT-EKSAMEN

MATHEMATICS P2/*WISKUNDE V2*

MARKING GUIDELINES/*NASIENRIGLYNE*

MAY/JUNE/*MEI/JUNIE* 2023

MARKS: 150
PUNTE: 150

These marking guidelines consist of 21 pages./
Hierdie nasienriglyne bestaan uit 21 bladsye.

Prof Rajendran Govender

Approved by Umalusi External Moderator on 15 May 2023

Please turn over/Blaai om asseblief

NOTE:

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

LET WEL:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek en nie oordoen nie, merk die doodgetrekte poging.*
- *Volgehoue akkuraatheid word in ALLE aspekte van die nasienriglyne toegepas. Hou op nasien by die tweede berekeningsfout.*
- *Aanvaar van antwoorde/waardes 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*

1.1.1	$a = 1730{,}22$ $b = 13{,}96$ $\hat{y} = 1730{,}22 + 13{,}96x$	✓ $a = 1730{,}22$ ✓ $b = 13{,}96$ ✓ equation (3)
1.1.2	$\hat{y} = 1730{,}22 + 13{,}96x$ $\hat{y} = 1730{,}22 + 13{,}96(28500)$ $\hat{y} = \text{R}399\,590{,}22$ **OR/*OF*** $\hat{y} = \text{R}399\,599{,}64$ (calc)	✓ substitution ✓ answer (2) ✓✓ answer (2)
1.1.3	$r = 0{,}98002\ldots$ $r = 0{,}98$	✓ answer (1)
1.1.4	There is a very strong positive correlation between the amount spent on advertising and sales. / *Daar is 'n baie sterk positiewe korrelasie tussen die bedrag spandeer op advertensie en die verkope.*	✓ strong positive / *sterk positief* (1)
1.2.1	$\bar{x} = \frac{1\,552195}{9}$ $\bar{x} = 172466{,}11$	✓ $\bar{x} = \frac{1\,552195}{9}$ ✓ answer (2)
1.2.2	$\sigma = 56950{,}09$	✓ answer (1)
1.2.3	$\bar{x} + \sigma$ $= 172466{,}11 + 56950{,}09$ $= 229416{,}20$ 2 years/*jaar*	✓ $\bar{x} + \sigma$ ✓ answer (2)
		[12]

QUESTION/*VRAAG 2*

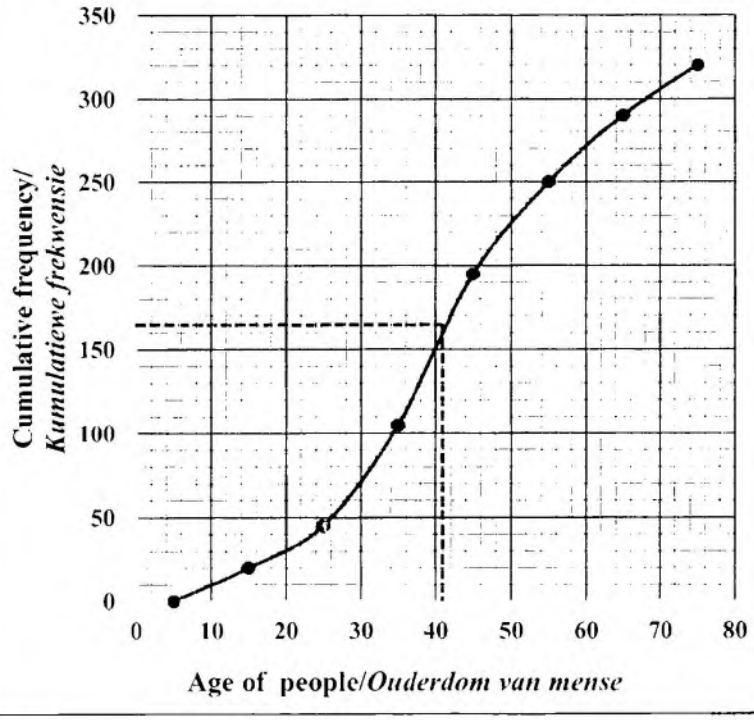
2.1 $35 < x \leq 45$ ✓ answer (1)

2.2 320 people/*mense* ✓ answer (1)

2.3

AGE	NUMBER OF PEOPLE	CUMULATIVE FREQUENCY
$5 < x \leq 15$	20	20
$15 < x \leq 25$	25	45
$25 < x \leq 35$	60	105
$35 < x \leq 45$	90	195
$45 < x \leq 55$	55	250
$55 < x \leq 65$	40	290
$65 < x \leq 75$	30	320

OGIVE/*OGIEF*

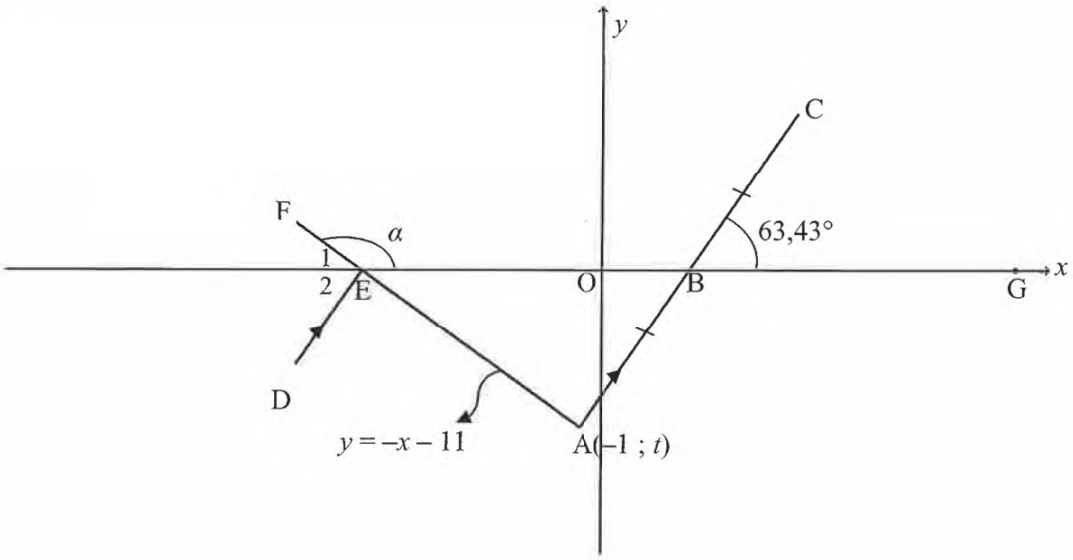


✓ cumulative frequency
✓ grounding
✓ plotting at upper limit
✓ shape (4)

2.4 Median = 41 ✓✓ answer (2)

[8]

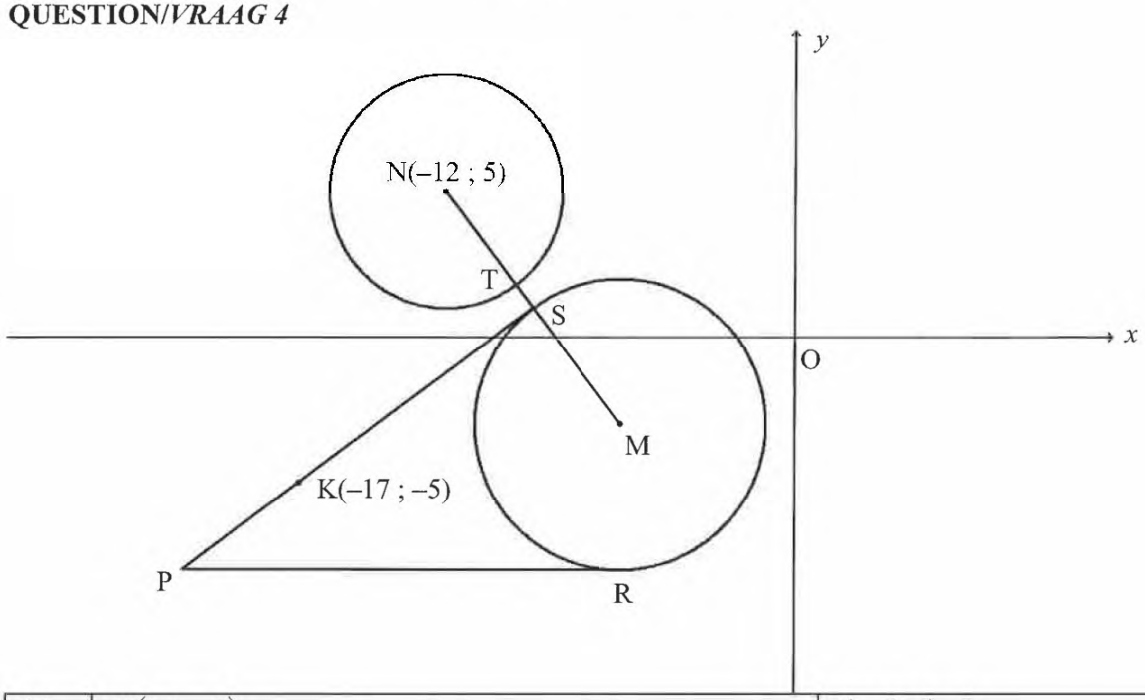
QUESTION/*VRAAG 3*



3.1.1	$y=-x-11$ A(–1 ; t) $t=-(-1)-11$ $t=-10$	✓ substitution ✓ value of t (2)
3.1.2	$\tan\alpha=-1$ $ref.\angle=45°$ $\therefore\alpha=135°$	✓ $\tan\alpha=-1$ ✓ 135° (2)
3.1.3	$\tan 63{,}43°=m_{AC}$ $m_{AC}=2$	✓ $\tan 63{,}43°=m_{AC}$ ✓ answer (2)
3.2	$m_{AC}=2$ A(–1 ; –10) $y=2x+k$ $-10=2(-1)+k$ $k=-8$ $y=2x-8$ **OR/*OF*** $y-y_1=2(x-x_1)$ $y-(-10)=2(x-(-1))$ $y=2x-8$	✓ substitution of m and A ✓ equation (2)

3.3.1	$y = 2x - 8$ $0 = 2x - 8$ $x_B = 4$ $\frac{x_C + (-1)}{2} = 4$ $\qquad$ $\frac{y_C + (-10)}{2} = 0$ $x_C = 9$ $\qquad$ $y_C = 10$ **OR/*OF*** by translation / *met translasie* $A \rightarrow B\ (x; y) \rightarrow (x+5; y+10)$ $B \rightarrow C\ (4; 0) \rightarrow (4+5;\ 0+10) = (9;\ 10)$	✓ $x_B = 4$ ✓ $x_C = 9$ ✓ $y_C = 10$ (3) ✓ $(x+5; y+10)$ ✓ $x_C = 9$ ✓ $y_C = 10$ (3)
3.3.2	$A\hat{B}E = 63,43°$ [vert. opp ∠'s =] $\hat{E}_2 = 63,43°$ [corres. ∠'s, DE ‖ AB] $\hat{E}_1 = 45°$ [∠s on a str line] $F\hat{E}D = 108,43°$ **OR/*OF*** $E\hat{A}B = 135° - 63,43°$ $E\hat{A}B = 71,57°$ $D\hat{E}A = E\hat{A}B = 71,57°$ $F\hat{E}D = 108,43°$ **OR/*OF*** $A\hat{B}E = 63,43°$ [vert. opp ∠'s] $D\hat{E}O = 116,57°$ [co-int. ∠'s, DE ‖ AB] $F\hat{E}D = 360° - (116,57° + 135°)$ $= 108,43°$	✓ $A\hat{B}E = 63,43°$ ✓ $\hat{E}_1 = 45°$ ✓ $F\hat{E}D = 108,43°$ (3) ✓ $E\hat{A}B = 71,57°$ ✓ $D\hat{E}A = E\hat{A}B = 71,57°$ ✓ $F\hat{E}D = 108,43°$ (3) ✓ $A\hat{B}E = 63,43°$ ✓ $D\hat{E}O = 116,57°$ ✓ $F\hat{E}D = 108,43°$ (3)
3.4	$y = 0$ $x_E = -11$ $\frac{x_G + (-11)}{2} = 4$ $x_G = 19$ $(x-19)^2 + y^2 = 15^2$ $(x-19)^2 + y^2 = 225$	✓ $x_E = -11$ ✓ $x_G = 19$ ✓ $(x-19)^2 + y^2$ ✓ 225 (4)
		[18]

QUESTION/*VRAAG 4*



4.1	$M(-6;-3)$	✓ –6 ✓ –3 (2)
4.2.1	$x^2+y^2+24x-10y+153=0$ $(x+12)^2+(y-5)^2=-153+144+25$ $(x+12)^2+(y-5)^2=16$ $r^2=16$ $r=4$ units	✓ $r^2=-153+144+25$ ✓ length of radius (2)
4.2.2	$NM=\sqrt{(-12-(-6))^2+(5-(-3))^2}$ NM = 10 units SM = 5 units $\therefore$ TS = 10 – 5 – 4 = 1 unit	✓ substitution into distance formula ✓ NM = 10 units ✓ SM = 5 units ✓ answer (4)
4.3.1	R(–6 ; –8) $y=-8$	✓ $y_R=-8$ ✓ equation (2)

4.3.2	$m_{NM} = \frac{5-(-3)}{-12-(-6)}$	✓ substitution
	$m_{NM} = -\frac{4}{3}$	✓ $m_{NM} = -\frac{4}{3}$
	$m_{tangent} = \frac{3}{4}$	✓ $m_{tangent} = \frac{3}{4}$
	$-5 = \frac{3}{4}(-17) + c$ **OR/*OF*** $y - y_1 = \frac{3}{4}(x - x_1)$	✓ substitution of m and N
	$c = \frac{31}{4}$ $y - (-5) = \frac{3}{4}(x - (-17))$	
	$y = \frac{3}{4}x + \frac{31}{4}$ $y = \frac{3}{4}x + \frac{31}{4}$	✓ equation (5)
	OR/OF	
	NS = SM = 5	✓ S midpoint
	$S\left(\frac{-12-6}{2}; \frac{5-3}{2}\right)$	
	S (– 9 ; 1)	✓ coordinates of S
	$m_{SK} = \frac{1-(-5)}{-9+17}$	
	$= \frac{6}{8} = \frac{3}{4}$	✓ $m_{tangent} = \frac{3}{4}$
	$y + 5 = \frac{3}{4}(x + 17)$	✓ substitution of m and K(–17 ; –5) or S
	$y = \frac{3}{4}x + \frac{31}{4}$ *or* $y = \frac{3}{4}x + 7\frac{3}{4}$	✓ equation (5)
4.4.1	$-8 = \frac{3}{4}x + \frac{31}{4}$	✓ $-8 = \frac{3}{4}x + \frac{31}{4}$
	$-32 = 3x + 31$	
	$3x = -63$	✓ $x = -21$
	$x = -21$	
	P(–21 ; –8)	
	R(–6 ; –8)	
	PR = PS = 15 units [tangents from same point]	✓ PR = PS = 15 units
	MS = MR = 5 units	✓ MS = MR = 5 units
	Perimeter PSMR = 15 + 15 + 5 + 5	
	= 40 units	✓ answer (5)

4.4.2	$\frac{\text{area of } \Delta NPS}{\text{area of quadrilateral PSMR}}$ $= \frac{\frac{1}{2}NS.SP}{\frac{1}{2}SP.MS + \frac{1}{2}MR.PR}$ $= \frac{\frac{1}{2}(5)(15)}{2\left(\frac{1}{2}\right)(5)(15)}$ $= \frac{1}{2}$ **OR** $\Delta NPS \equiv \Delta SPM \equiv \Delta MPR$ $\frac{\text{area of } \Delta NPS}{\text{area of quadrilateral PSMR}}$ $= \frac{1}{2}$	✓ substitution ✓ answer (2) ✓ congruent ✓ answer (2)
		[22]

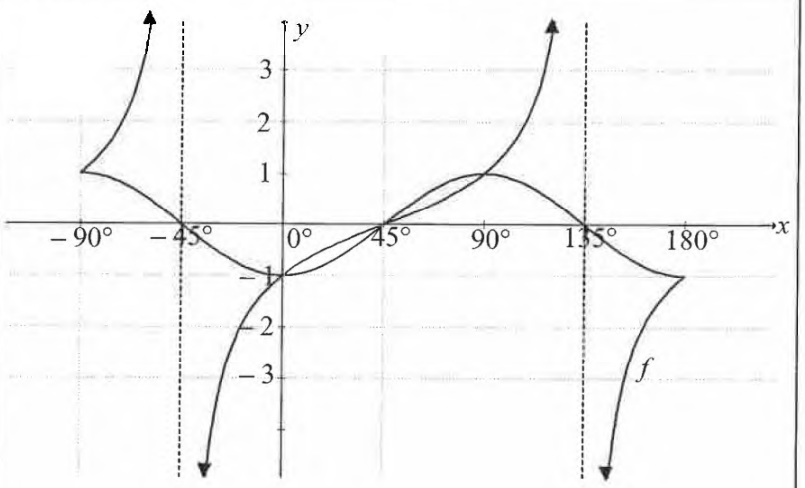
QUESTION/*VRAAG 5*

5.1	$\dfrac{1-\sin(-\theta)\cos(90°+\theta)}{\cos(\theta-360°)}$ $=\dfrac{1-(-\sin\theta)(-\sin\theta)}{\cos\theta}$ $=\dfrac{1-\sin^2\theta}{\cos\theta}$ $=\dfrac{\cos^2\theta}{\cos\theta}$ $=\cos\theta$	✓ $-\sin\theta$ ✓ $-\sin\theta$ ✓ $\cos\theta$ ✓ $\cos^2\theta$ ✓ answer (5)
5.2.1	$\cos200°$ $=-\cos20°$ $=-p$	✓ reduction ✓ answer (2)
5.2.2	$\sin(-70°)$ $=-\sin70°$ $=-\cos20°$ $=-p$ **OR/*OF*** $\sin(-70°)$ $=-\sin70°$ $=-p$	✓ reduction ✓ answer (2) ✓ reduction ✓ answer (2)
5.2.3	$\sin10°$ $\cos(2(10°))=1-2\sin^2 10°$ $2\sin^2 10°=1-\cos20°$ $\sin10°=\sqrt{\dfrac{1-\cos20°}{2}}$ $\sin10°=\sqrt{\dfrac{1-p}{2}}$ **OR/*OF*** $\sin10°$ $\sin(30°-20°)$ $=\sin30°\cos20°-\cos30°\sin20°$ $=\dfrac{1}{2}p-\dfrac{\sqrt{3}}{2}\sqrt{1-p^2}=\dfrac{p-\sqrt{3}\sqrt{1-p^2}}{2}$	✓ double angle ✓ $\sin10°$ as subject ✓ answer (3) ✓ using special angle ✓ expanding ✓ answer (3)

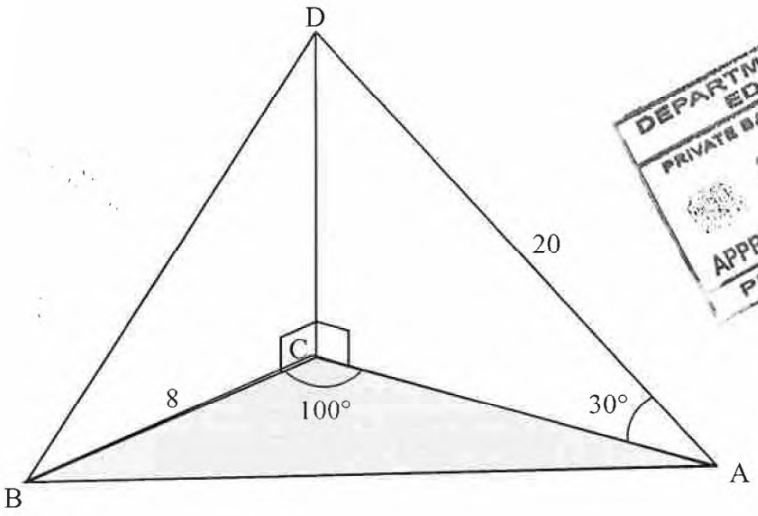
	OR/*OF* $\sin 10°$ $\sin(70° - 60°)$ $= \sin 70° \cos 60° - \cos 70° \sin 60°$ $= p.\frac{1}{2} - \sqrt{1-p^2} \times \frac{\sqrt{3}}{2} = \frac{p - \sqrt{3}\sqrt{1-p^2}}{2}$ **OR/*OF*** $\sin 10°$ $= \cos 80°$ $\cos(60° + 20°)$ $= \cos 60° \cos 20° - \sin 60° \sin 20°$ $= \frac{1}{2}p - \frac{\sqrt{3}}{2}.\sqrt{1-p^2}$	✓ using special angle ✓ expanding ✓ answer (3) ✓ using special angle ✓ expanding ✓ answer (3)
5.3	$\cos(A + 55°)\cos(A + 10°) + \sin(A + 55°)\sin(A + 10°)$ $= \cos[A + 55° - (A + 10°)]$ $= \cos 45°$ $= \frac{1}{\sqrt{2}}$ or $\frac{\sqrt{2}}{2}$	✓✓ compound identity ✓ answer (3)
5.4.1	LHS $= \frac{\cos 2x + \sin 2x - \cos^2 x}{\sin x - 2\cos x}$ RHS $= -\sin x$ $= \frac{\cos^2 x - \sin^2 x + 2\sin x \cos x - \cos^2 x}{\sin x - 2\cos x}$ $= \frac{-\sin^2 x + 2\sin x \cos x}{\sin x - 2\cos x}$ $= \frac{-\sin x(\sin x - 2\cos x)}{\sin x - 2\cos x}$ $= -\sin x$ $\therefore$ LHS = RHS	✓ $\cos^2 x - \sin^2 x$ ✓ $2\sin x \cos x$ ✓ common factor of $-\sin x$ (3)
5.4.2	$\frac{\cos 2x + \sin 2x - \cos^2 x}{-3\sin^2 x + 6\sin x \cos x}$ $= \frac{\cos 2x + \sin 2x - \cos^2 x}{-3\sin x(\sin x - 2\cos x)}$ $= \frac{\cos 2x + \sin 2x - \cos^2 x}{(\sin x - 2\cos x)} \times \frac{1}{-3\sin x}$ $= (-\sin x) \times \frac{1}{-3\sin x}$ $= \frac{1}{3}$	✓ common factor of $-3\sin x$ ✓ substitution ✓ answer (3)

5.5.1	$3\tan 4x = -2\cos 4x$ $3\left(\frac{\sin 4x}{\cos 4x}\right) = -2\cos 4x$ $3\sin 4x + 2\cos^2 4x = 0$ $3\sin 4x + 2(1 - \sin^2 4x) = 0$ $-2\sin^2 4x + 3\sin 4x + 2 = 0$ $2\sin^2 4x - 3\sin 4x - 2 = 0$ $(2\sin 4x + 1)(\sin 4x - 2) = 0$ $\sin 4x = -\frac{1}{2}$ or $\sin 4x \neq 2$	✓ identity ✓ $1 - \sin^2 4x$ ✓ standard form ✓ factors (4)
5.5.2	$\sin 4x = -\frac{1}{2}$ *ref.* $\angle = 30°$ $4x = 210° + k.360°$ or $4x = 330° + k.360°$ $x = 52{,}5° + k.90°$; $k \in Z$ $x = 82{,}5° + k.90°$; $k \in Z$	✓ 210° ; 330° ✓ 52,5° ; 82,5° ✓ $k.90°$; $k \in Z$ (3)
		[28]

QUESTION/VRAAG 6

6.1	Period = 180°	✓ answer (1)
6.2		✓ x-intercepts ✓ turning points ✓ end points (3)
6.3	$y \in [-1;1]$ **OR/*OF*** $-1 \le y \le 1$	✓ answer (1)
6.4	$g(x) = -\cos 2x$ $g(x+45°) = -\cos 2(x+45°)$ $= -\cos(2x+90°)$ $= \sin 2x$	✓ $-\cos 2(x+45°)$ ✓ answer (2)
6.5.1	$x \in (-90°;-45°)$ **OR/*OF*** $-90° < x < -45°$	✓✓ $x \in (-90°;-45°)$ (2)
6.5.2	$2\cos 2x - 1 > 0$ $\cos 2x > \frac{1}{2}$ $-\cos 2x < -\frac{1}{2}$ $x \in (-30°;30°)$ **OR/*OF*** $-30° < x < 30°$	✓ $\cos 2x > \frac{1}{2}$ ✓ $-\cos 2x < -\frac{1}{2}$ ✓ $x = \pm 30°$ ✓ interval (4)
		[13]

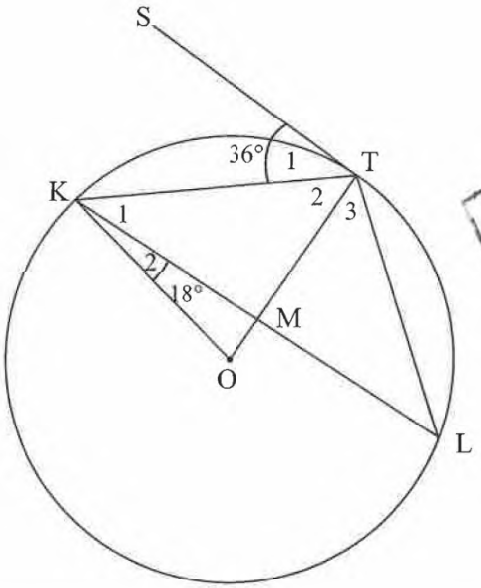
QUESTION/*VRAAG 7*



7.1.1	$\frac{AC}{20} = \cos 30°$ $AC = 20\cos 30°$ $AC = 10\sqrt{3} = 17{,}32$ units **OR/*OF*** $\frac{AC}{\sin 60°} = \frac{20}{\sin 90°}$ $\therefore AC = 20\sin 60 = 17{,}32$	✓ trig ratio ✓ answer (2) ✓ trig ratio ✓ answer (2)
7.1.2	$AB^2 = AC^2 + BC^2 - 2AC.BC\cos A\hat{C}B$ $AB^2 = \left(10\sqrt{3}\right)^2 + 8^2 - 2\left(10\sqrt{3}\right)(8)\cos 100°$ $AB = 20{,}30$ units	✓ cosine formula ✓ substitution into cosine formula ✓ answer (3)
7.2	$\frac{\sin A\hat{D}B}{AB} = \frac{\sin A\hat{B}D}{AD}$ $\frac{\sin A\hat{D}B}{20{,}3} = \frac{\sin 73{,}4°}{20}$ $\sin A\hat{D}B = \frac{20{,}3\sin 73{,}4°}{20}$ $A\hat{D}B = 76{,}58°$	✓ sine formula in ΔABD ✓ substitution into sine formula ✓ answer (3)
		[8]

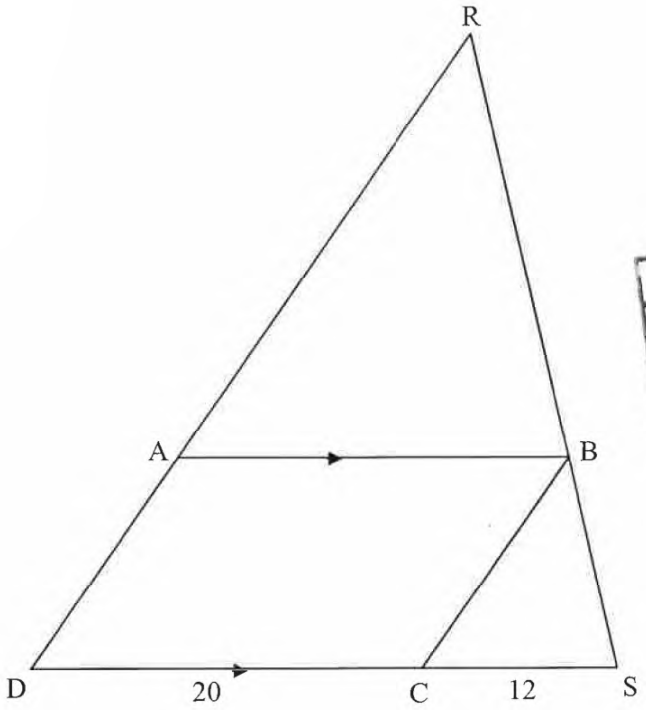
QUESTION/*VRAAG 8*

8.1



8.1.1(a)	$\hat{T}_2 = 54°$	[tan ⊥ rad]	✓ S ✓R (2)
8.1.1(b)	$\hat{L}=36°$	[tan - chord theorem]	✓ S ✓R (2)
8.1.1(c)	$K\hat{O}T=72°$	[∠ at centre = 2×∠ at circumference]	✓ S ✓R (2)
	OR/*OF*		
	$O\hat{K}T=\hat{T}_2=54°$	[∠s opposite = radii]	✓ S/R
	$K\hat{O}T=180°-(54°+54°)$ $=72°$	[sum of int ∠'s of Δ]	✓ S (2)
8.1.2	$K\hat{M}O=180°-(18°+72°)$ $=90°$	[sum of int ∠'s of Δ]	✓ S ✓ S
	∴ KM = ML	[line from centre ⊥ to chord]	✓ R (3)
	OR/*OF*		
	$O\hat{K}T=54°$	[∠s opposite = radii]	
	$\hat{K}_1=54°-18°=36°$		✓ S
	$T\hat{M}K=90°$	[sum of int ∠'s of Δ]	✓ S
	∴ KM = ML	[line from centre ⊥ to chord]	✓ R (3)

8.2

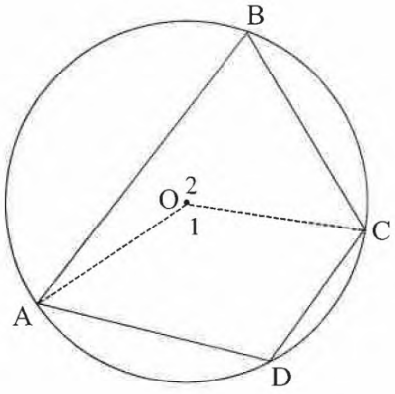


8.2.1	$\frac{DC}{CS}=\frac{20}{12}=\frac{5}{3}$ $\therefore \frac{DC}{CS}=\frac{RB}{BS}$ $\therefore$ BC ‖ DR [converse line ‖ one side of Δ OR sides in the $\therefore$ BC ‖ AD same proportion]	✓ S ✓ S ✓ R (3)
8.2.2	$\frac{AR}{AD}=\frac{RB}{BS}$ [line ‖ one side of Δ] **OR**[Prop Theorem AB ‖ DS] $\frac{AR}{AD}=\frac{5}{3}$ $\frac{48-AD}{AD}=\frac{5}{3}$ $\therefore 5AD = 144-3AD$ $AD = 18$ AB = 20 [opp sides of parm] $\therefore$ AD : AB = 18 : 20 = 9 : 10	✓ $\frac{AR}{AD}=\frac{5}{3}$ ✓ AD = 18 ✓ ratio (3)

	OR/OF	
	$\frac{AR}{RD}=\frac{5}{8}$.....prop thm AB || DS	
	$\frac{AR}{48}=\frac{5}{8}$	✓ $\frac{AR}{RD}=\frac{5}{8}$
	$\therefore AR=30$ and $AD=18$	✓ $AD=18$
	$\therefore \frac{AR}{RD}=\frac{AB}{DS}$.....$\|\|\| \Delta's$	
	$\therefore AB=20$	
	$\therefore AB:AD=18:20=9:10$	✓ ratio
		(3)
		[15]

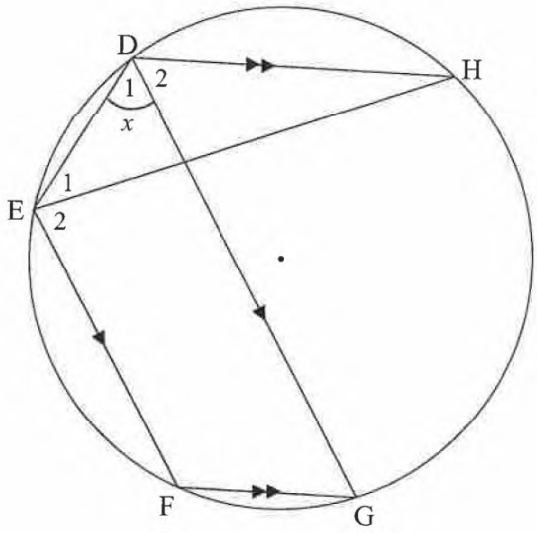
QUESTION/*VRAAG 9*

9.1



9.1	Constr: Draw radii OA and OC. Proof: $\hat{O}_1 = 2\hat{B}$ [$\angle$ at centre = $2\times\angle$ at circumference] $\hat{O}_2 = 2\hat{D}$ [$\angle$ at centre = $2\times\angle$ at circumference] $\hat{O}_1 + \hat{O}_2 = 360°$ [revolution] $2\hat{B} + 2\hat{D} = 360°$ [revolution] $\therefore \hat{B} + \hat{D} = 180°$	✓ Construction ✓ S ✓ R ✓ S/R ✓ S (5)

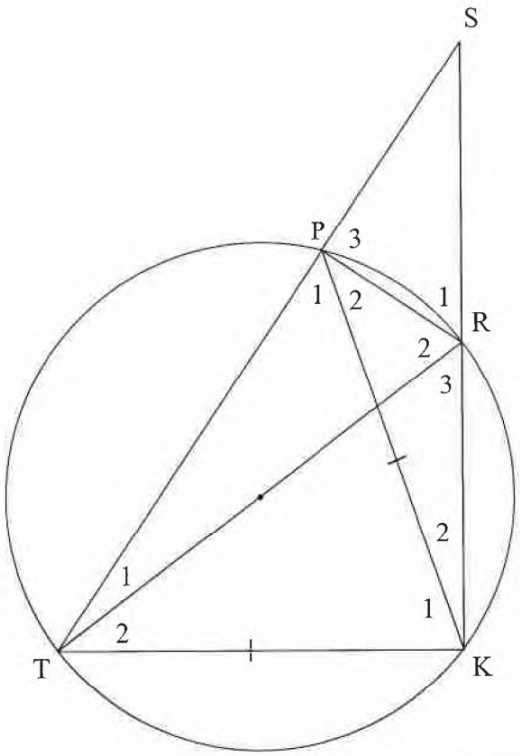
9.2



9.2	$E\hat{F}G = 180° - \hat{D}_1$ [opp ∠'s of cyclic quad] $\therefore E\hat{F}G = 180° - x$ $E\hat{F}G = 180° - \hat{G}$ [co-int ∠'s; EF ‖ DG] $\hat{G} = x$ But $\hat{G} = \hat{D}_2$ [alt ∠'s; DH ‖ FG] $\therefore \hat{D}_1 = \hat{D}_2 = x$	✓S ✓ R ✓S / R ✓ S / R (4)
		[9]

QUESTION/VRAAG 10

10.1



10.1.1	$T\hat{P}R = 90°$	[∠ in semi-circle]	✓S ✓R
	$S\hat{P}R = 90°$	[∠'s on a straight line]	✓S
	∴ SR is a diameter	[converse ∠ in semi-circle]	✓R
			(4)
	OR		
	$T\hat{K}R = 90°$	[∠ in semi-circle]	✓S ✓R
	$S\hat{P}R = 90°$	[ext ∠ of cyclic quad]	✓S
	∴ SR is a diameter	[converse ∠ in semi-circle]	✓R
		OR	(4)
		[chord subtends a right angle]	

10.1.2	$\hat{R}_1 = P\hat{T}K$ $\hat{P}_1 = P\hat{T}K = \hat{R}_1$ $\hat{S} + \hat{R}_1 = \hat{P}_1 + P_2$ $\therefore \hat{S} = \hat{P}_2$	[ext ∠ of cyclic quad] [∠s opp equal sides] [ext ∠ of Δ] [$\hat{R}_1 = \hat{P}_1$]	✓S ✓R ✓S /R ✓S ✓R (5)
10.1.3	In ΔSPK and ΔPRK $\hat{S} = \hat{P}_2$ $\hat{K}_2 = \hat{K}_2$ ΔSPK ||| ΔPRK **OR/*OF*** In ΔSPK and ΔPRK $\hat{S} = \hat{P}_2$ $\hat{K}_2 = \hat{K}_2$ $S\hat{P}K = P\hat{R}K$ ΔSPK ||| ΔPRK	[proved] [common] [∠, ∠, ∠] [proved] [common] [sum of ∠s in Δ]	✓S ✓S ✓S/R (3) ✓S ✓S ✓S/R (3)
10.2	$\frac{PK}{RK} = \frac{SK}{PK}$ [ΔSPK ||| ΔPRK] $PK^2 = SK.RK$ $ST^2 = SK^2 + TK^2$ $TK = PK$ $ST^2 = SK^2 + PK^2$ $ST^2 = SK^2 + SK.RK$ $ST^2 = (2RK)^2 + 2RK.RK$ $ST^2 = 6RK^2$ $ST = \sqrt{6}RK$	 [Pythagoras] [Given] 	✓S ✓S ✓$PK^2 = SK.RK$ ✓$SK = 2RK$ ✓$ST^2 = 6RK^2$ (5)
			[17]

TOTAL/TOTAAL: 150