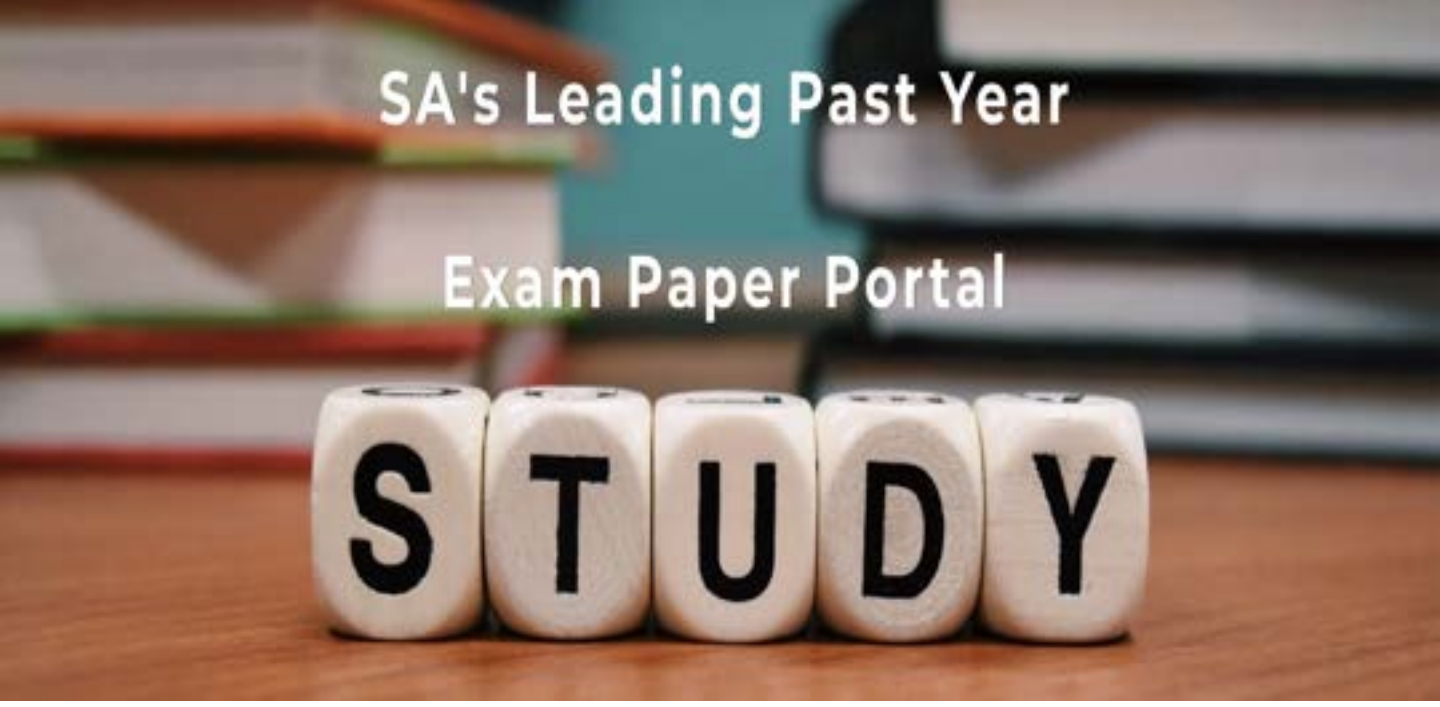

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GRADE/*GRAAD* 12

SEPTEMBER 2022

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

MARKS/*PUNTE*: 150

This marking guideline consists of 18 pages./
Hierdie nasienriglyn bestaan uit 18 bladsye.

NOTE:

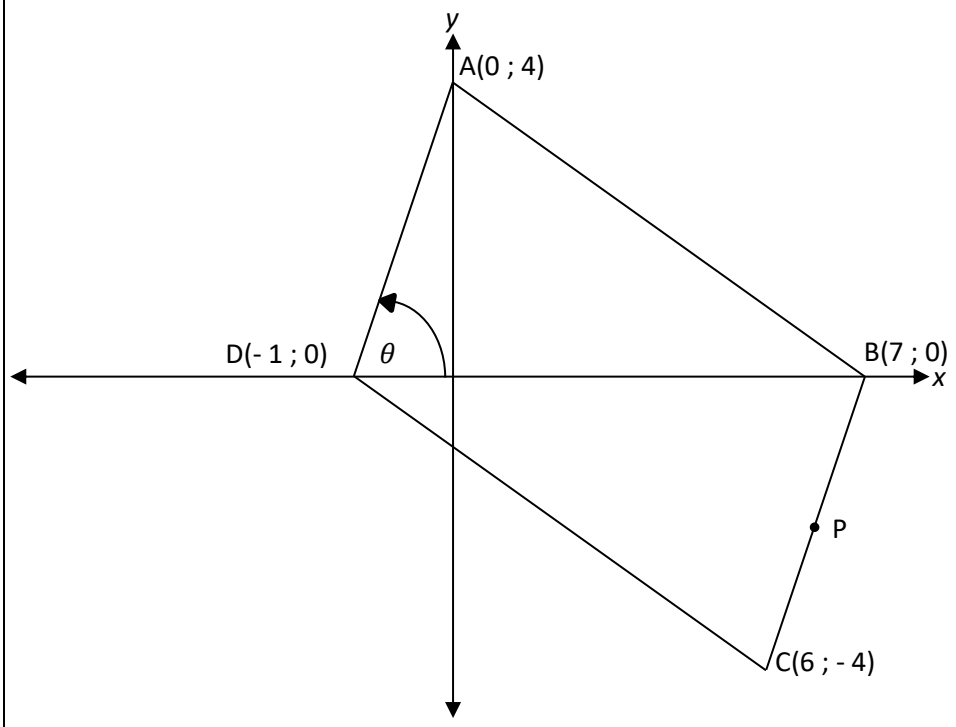
- Continuous accuracy (CA) applies only where indicated in this marking guideline.
- Assuming values/answers in order to solve a problem is unacceptable.

LET WEL:

- *Volgehoue akkuraatheid (CA) is slegs van toepassing soos aangedui in hierdie nasienriglyn.*
- *Aanvaarding van waardes/antwoorde om ŉ problem op te los, is onaanvaarbaar.*

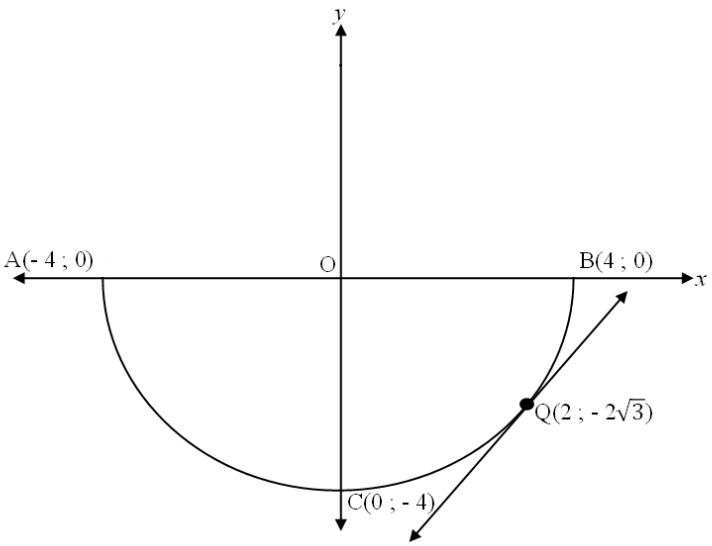
MARKING CODES / *NASIENKODES*	
M	**Method / *Metode***
A	**Accuracy / *Akkuraatheid***
AO	**Answer only / *Slegs antwoord***
CA	**Consistent accuracy / *Deurlopende akkuraatheid***
F	**Formula / *Formule***
I	**Identity / *Identiteit***
R	**Rounding / *Afronding***
S	**Simplification / *Vereenvoudiging***
ST	**Statement / *Bewering***
RE	**Reason / *Rede***
ST RE	**Statement and correct reason / *Bewering en korrekte rede***
SF	**Substitution correctly in correct formula / *Korrekte vervanging in die korrekte formule***
NPU	**No penalty for omitting units / *Geen penalisering vir eenhede uitgelaat***

QUESTION/*VRAAG* 1

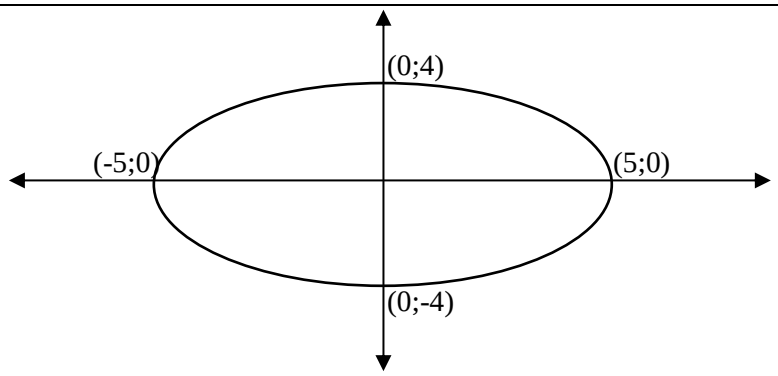
		
1.1	$m_{AD} = \frac{y_2 - y_1}{x_2 - x_1}$ $m_{AD} = \frac{4-0}{0-(-1)}$ $m_{AD} = 4$ **AO: Full marks / *Volpunte***	✓ **SF** **A** ✓ **4** **CA** (2)
1.2	$tan\theta = m_{AD}$ $tan\theta = 4$ $\theta = tan^{-1}(4)$ $\theta = 75{,}96° \approx 76°$	✓ **F** **A** ✓ **SF** **CA** ✓ **76°** **CA** (3)
1.3	$P\left(\frac{7+6}{2}; \frac{0+(-4)}{2}\right)$ $P\left(\frac{13}{2}; \frac{-4}{2}\right)$ $P\left(\frac{13}{2}; -2\right)$	✓ **SF** **A** ✓ $\left(\frac{13}{2}; -2\right)$ **CA** (2)
1.4	$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $AB = \sqrt{(0-7)^2 + (4-0)^2}$ $AB = \sqrt{65}$ **AO: Full marks / *Volpunte***	✓ **SF** **A** ✓ $\sqrt{65}$ **CA** (2)

1.5	$m_{BC} = \frac{0-(-4)}{7-6}$ $m_{BC} = 4$		$m_{BC} = 4$ ($\parallel$ lines / *lyne*)	
	$\therefore m_{\perp} = -\frac{1}{4}$ $\therefore y = -\frac{1}{4}x + c$ $\left(\frac{13}{2}; -2\right): -2 = -\frac{1}{4}\left(\frac{13}{2}\right) + c$ $\therefore -2 = -\frac{13}{8} + c$ $\therefore -\frac{3}{8} = c$ $\therefore y = -\frac{1}{4}x - \frac{3}{8}$	**OR/ OF**	$\therefore m_{\perp} = -\frac{1}{4}$ $\therefore y - y_1 = -\frac{1}{4}(x - x_1)$ $\left(\frac{13}{2}; -2\right): y - (-2) = -\frac{1}{4}(x - \frac{13}{2})$ $\therefore y + 2 = -\frac{1}{4}x + \frac{13}{8}$ $\therefore y = -\frac{1}{4}x + \frac{13}{8} - 2$ $\therefore y = -\frac{1}{4}x - \frac{3}{8}$	✓ $\boldsymbol{m_{\perp} = -\frac{1}{4}}$**CA** ✓ **sub** $\left(\frac{13}{2}; -2\right)$ **CA** ✓ $\boldsymbol{y = -\frac{1}{4}x - \frac{3}{8}}$ **A** (3)
				[12]

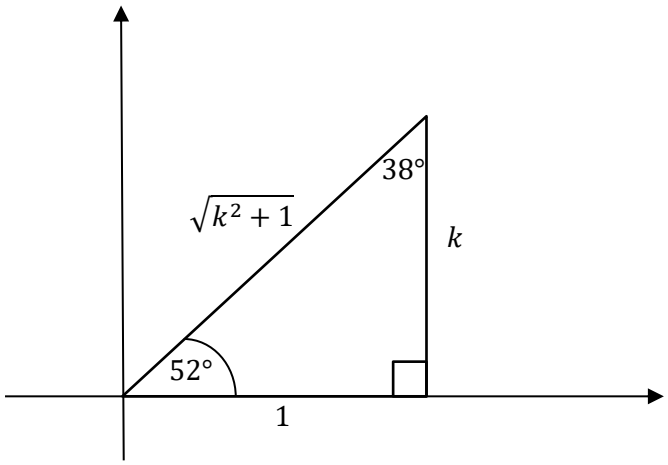
QUESTION/*VRAAG* 2

2.1		
2.1.1	$y = -\sqrt{r^2 - x^2}$ $y = -\sqrt{(-4)^2 - x^2}$ $y = -\sqrt{16 - x^2}$	✓**SF** **A** ✓**Simplification/ *Vereenv.*** **CA** ✓$\boldsymbol{y = -\sqrt{16 - x^2}}$ **CA** (3)
2.1.2	$m_{OQ} = \frac{y_2 - y_1}{x_2 - x_1}$ $m_{OQ} = \frac{0-(-2\sqrt{3})}{0-2}$ $m_{OQ} = -\sqrt{3}$	✓**SF** **A** ✓$\boldsymbol{m_{OQ} = -\sqrt{3}}$ **CA** (2)

2.1.3	$m_{tangent} = \frac{1}{\sqrt{3}}$ $\therefore y = \frac{1}{\sqrt{3}}x + c$ $(0;-5): -5 = \frac{1}{\sqrt{3}}(0) + c$ $-5 = c$ $\therefore y = \frac{1}{\sqrt{3}}x - 5$ **OR/*OF***	$m_{tangent} = \frac{1}{\sqrt{3}}$ $\therefore y = \frac{1}{\sqrt{3}}x + c$ $(0\ ;\ -5)$ implies $c = -5$ $\therefore y = \frac{1}{\sqrt{3}}x - 5$	✓ $\frac{1}{\sqrt{3}}$ **A** ✓ $\boldsymbol{y = \frac{1}{\sqrt{3}}x - 5}$ **CA** (2)

2.2.1		✓ **elliptical shape with horizontal axis as major axis /** ***Elliptiese vorm met groter-as as die horisontale-as*** **A** ✓ ***x*-intercepts/ *x-afsnitte*** **A** ✓ ***y*-intercepts/*y-afsnitte*** **A** (3)
2.2.2	Length of major axis/Lengte van lang-as = 5 – (- 5) = 10 units / *eenheid.*	✓ **10** **CA** (1)
		[11]

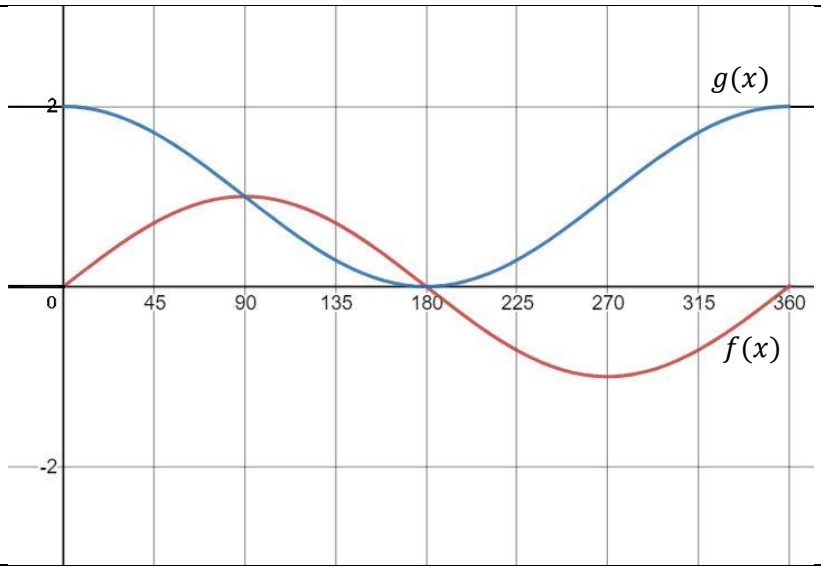
QUESTION/*VRAAG* 3

3.1.1	Sin(38,9˚) + cos2(153,2˚) = 1,22	✓ **SF** **A** ✓ **1,22** **A** (2)
3.1.2	$\sec\left(\frac{38,9°}{3}+153,2°\right)$ $=\frac{1}{cos\left(\frac{38,9°}{3}+153,2°\right)}$ = -1,03	✓ **SF** **A** ✓ **reciprocal ratio / *resiprook verh.*** **A** ✓ **- 1,03** **A** (3)
3.2.1	 $\therefore cos52° = \frac{1}{\sqrt{k^2+1}}$	✓**Diagram** **A** ✓$\sqrt{\boldsymbol{k^2+1}}$ **A** ✓$\frac{\mathbf{1}}{\sqrt{\boldsymbol{k^2+1}}}$ **CA** (3)
3.2.2	$cosec38° = \sqrt{k^2+1}$	✓**answer/*antwoord*** **A** (1)
3.2.3	$sin232° = \sin(180° + 52°)$ $sin232° = -sin52°$ $sin232° = \frac{-k}{\sqrt{k^2+1}}$	✓**Conv./Herleiding** **A** ✓✓ **answer/*antw.*** **A** (3)
3.3	$\frac{1}{2}cosec2\theta = 0,814$ $cosec2\theta = 1,628$ $\frac{1}{sin2\theta} = 1,628$ $1 = 1,628 \times sin2\theta$ $\frac{1}{1,628} = sin2\theta$ $37,897 \ldots° = 2\theta$ $18,95° = \theta$	✓ **S** **A** ✓ $\frac{\mathbf{1}}{\boldsymbol{sin2\theta}}$ **A** ✓ **S** **CA** ✓ $\boldsymbol{18,95° = \theta}$ **CA** (4)
		[16]

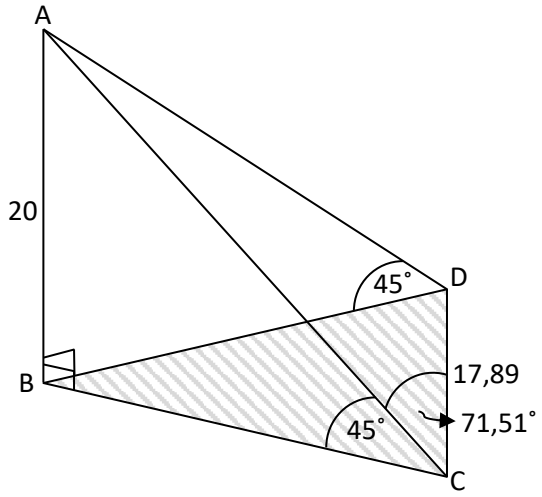
QUESTION/*VRAAG* 4

4.1	$cosec^2\theta$	✓**Answer/*Antw.*A** (1)
4.2	$\frac{\cos(180°+\theta).\tan(360°-\theta).cos^2(360°-\theta)}{\sin(180°-\theta)} + cos^2\theta$ $= \frac{-cos\theta.-tan\theta.cos^2\theta}{\sin\theta} + cos^2\theta$ $= \frac{-cos\theta.-\frac{sin\theta}{cos\theta}.cos^2\theta}{\sin\theta} + cos^2\theta$ $= cos^2\theta + cos^2\theta$ $= 2cos^2\theta$	✓ $-cos\theta$ **A** ✓ $-tan\theta$ **A** ✓ $cos^2\theta$ **A** ✓ $\sin\theta$ **A** ✓ $\frac{sin\theta}{cos\theta}$ **A** ✓ **S** **A** ✓ $2cos^2\theta$ **CA** (7)
4.3	$LHS = \frac{sec\theta + cosec\theta}{sin\theta + cos\theta}$ $LHS = \frac{\frac{1}{cos\theta} + \frac{1}{sin\theta}}{sin\theta+cos\theta}$ $LHS = \frac{\frac{sin\theta+cos\theta}{cos\theta sin\theta}}{sin\theta+cos\theta}$ $LHS = \frac{sin\theta+cos\theta}{cos\theta sin\theta} \times \frac{1}{sin\theta+cos\theta}$ $LHS = \frac{1}{cos\theta sin\theta}$ $RHS = \frac{sin\theta}{cos\theta} + \frac{cos\theta}{sin\theta}$ $RHS = \frac{sin^2\theta + cos^2\theta}{cos\theta sin\theta}$ $RHS = \frac{1}{cos\theta sin\theta} = LHS$	✓ $\frac{1}{cos\theta}$ **A** ✓ $\frac{1}{sin\theta}$ **A** ✓ $\frac{sin\theta+cos\theta}{cos\theta sin\theta}$ **CA** ✓ $\frac{1}{cos\theta sin\theta}$ **CA** ✓ $sin^2\theta + cos^2\theta$ **CA** ✓ $cos\theta sin\theta$ **CA** ✓ **identity / *identiteit*** **A** ✓ $RHS = LHS$ **CA** (8)
		[16]

QUESTION/*VRAAG* 5

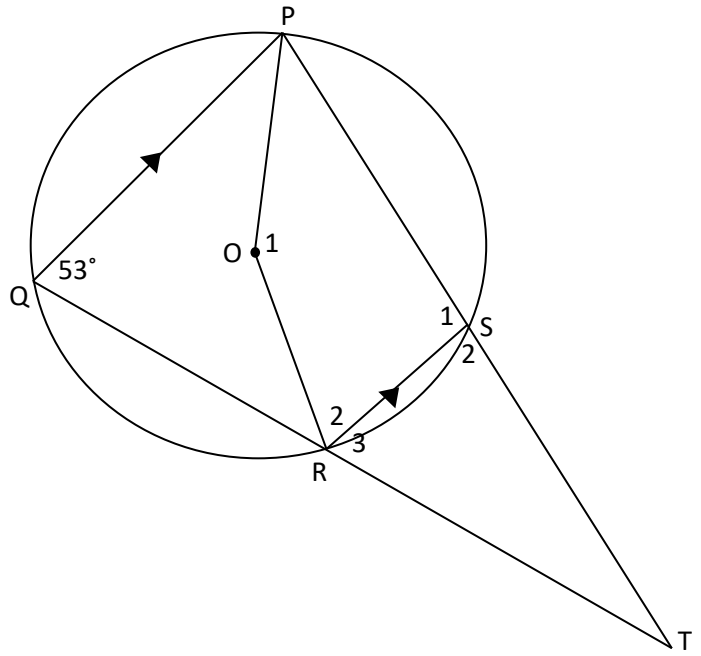
5.1		✓ start points/ *beginpunte* ✓ end points/*eindpunte* ✓ cos turning points/*cos draaipunte* ✓ cos x-intercepts/*cos x-afsnitte* ✓ sin turning points/*sin draaipunte* ✓ sin x-intercepts/*sin x-afsnitte* ✓Points of intersection/ *snypunte* (7)
5.2	$y \in [0; 2]$ **OR/ *OF*** $0 \leq y \leq 2$	✓ Notation/*Notasie* **A** ✓ start and endpoints/ *begin- en eindpunte* **CA** (2)
5.3	360°	✓ **Answer**/*Antw.* **A** (1)
5.4	$x = 90°$ and/*en* $x = 180°$	✓ $\boldsymbol{x = 90°}$ **CA** ✓ $\boldsymbol{x = 180°}$ **CA** (2)
		[12]

QUESTION/*VRAAG* 6

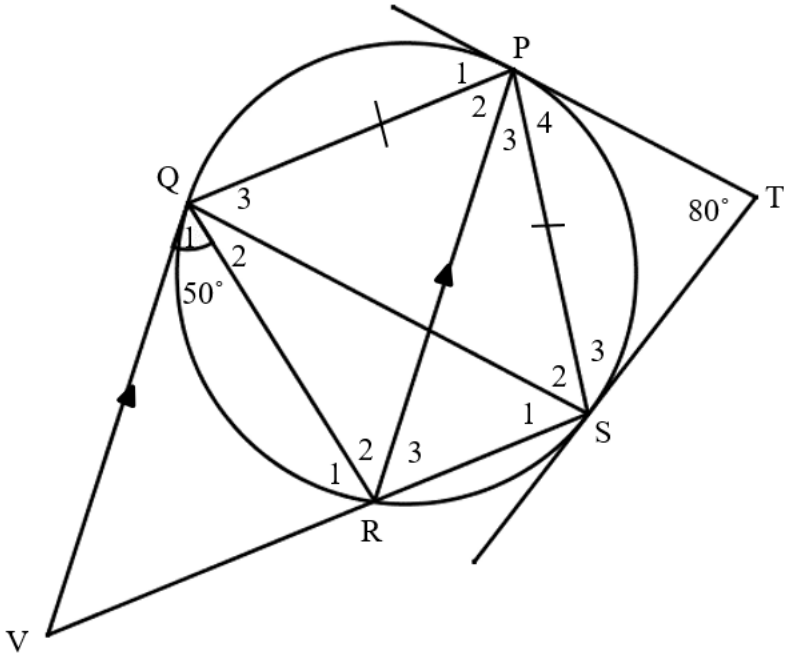
<table>
<tr><td></td><td colspan="3"> 
</td><td></td></tr>
<tr><td>6.1</td><td>$sin45° = \frac{20}{AC}$
$AC \times sin45° = 20$
$AC = \frac{20}{sin45°}$
$AC = 20\sqrt{2}$</td><td>OR/
OF</td><td>$BC = 20$
(sides opp = ∠'s / sye teenoor = ∠'e)
$AC = 20\sqrt{2}$ (Pyth)</td><td>✓ SF A

✓ answer/antw CA
(2)</td></tr>
<tr><td>6.2</td><td>$AC = AD = 20\sqrt{2}$
$C\hat{A}D = 36{,}86°$ (Int. ∠'s of Δ / Binne ∠'e van Δ)
$\therefore Area\ \Delta ACD = \frac{1}{2}AD.AC.sinA\hat{C}D$
$\therefore Area\ \Delta ACD = \frac{1}{2}(20\sqrt{2})(20\sqrt{2}).sin36{,}86°$
$\therefore Area\ \Delta ACD = 239{,}94$ square units / vierkante eenh.
OR / OF
$Area\ \Delta ACD = \frac{1}{2}DC.AC.sinA\hat{C}D$
$\therefore Area\ \Delta ACD = \frac{1}{2}(17{,}89)(20\sqrt{2}).sin71{,}51°$
$\therefore Area\ \Delta ACD = 239{,}94$ square units / vierkante eenh.</td><td colspan="2">✓ F A
✓ SF CA
✓ Answer/Antw. A
(3)</td></tr>
<tr><td></td><td></td><td colspan="2"></td><td>[5]</td></tr>
</table>

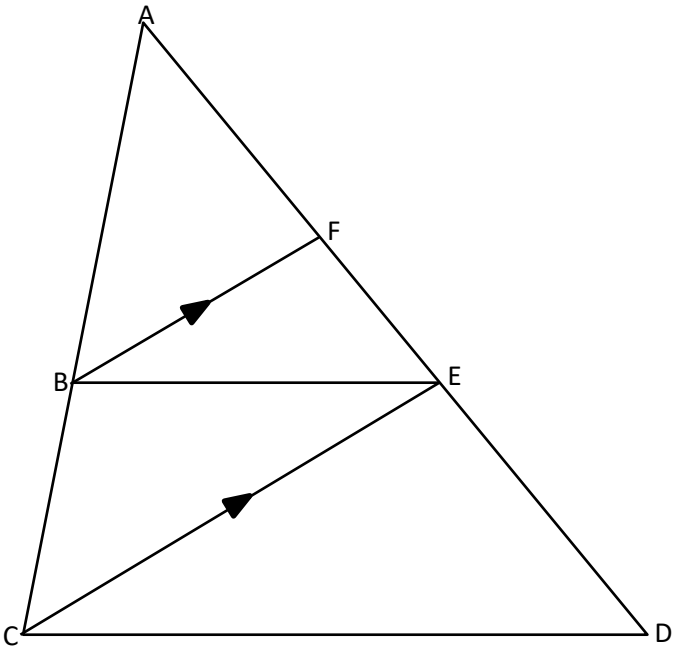
QUESTION/*VRAAG* 7

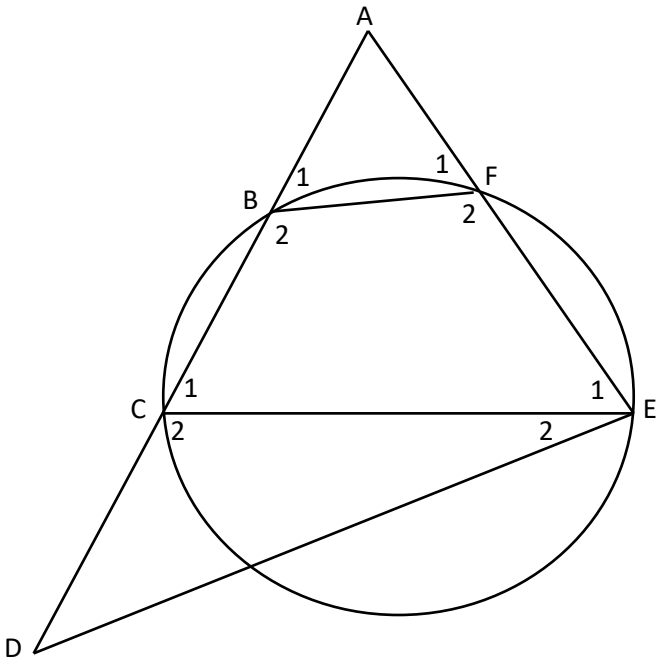
7.1	double/twice/*dubbel*/*twee keer*	✓ (1)
7.2		
7.2.1	$\widehat{O_1} = 106°$ (∠ at centre = 2 x < at circumf. / ∠ *by middelpt. = 2* x < *by omtrek*)	✓ **ST** ✓**RE** (2)
7.2.2	$\widehat{S_2} = 53°$ (Ext. ∠ of cq / *Buite ∠ van kvh*)	✓ **ST** ✓**RE** (2)
7.2.3	$\widehat{P} = 53°$ (Corresp. ∠'s = / Ooreenkomst. ∠*'e =;* QP ∥ SR)	✓ **ST** ✓**RE** (2)
		[7]

QUESTION/*VRAAG* 8

8.1	equal / *gelyk*	✓ (1)
8.2		
8.2.1	Tangents from same or common pt / *raaklyne vanuit dieselfde pt.*	✓ **ST** (1)
8.2.2	$\therefore \widehat{P_4} = \widehat{S_3}$ (∠'s opp = sides / *∠'e teenoor = sye*) $\widehat{P_4} = \frac{180°-80°}{2} = 50°$ (Int. ∠'s of Δ / *Binne ∠'e van*	✓ **ST** ✓**RE** ✓ **ST** ✓**RE** (4)
8.2.3 (a)	$\hat{P}_2 = 50°$ (tan-chord / *raaklyn-koord*)	✓ **ST** ✓**RE** (2)
8.2.3 (b)	$\hat{Q}_3 = 50°$ (tan-chord / *raaklyn-koord*) $\therefore \hat{S}_2 = 50°$ (∠'s opp = sides / *∠'e teenoor = sye*)	✓ **ST / RE** ✓ **ST / RE** (2)
8.2.3 (c)	$\hat{R}_2 = 50°$ ……..(alt/*verw* ∠s/*e*; VQ || RP) **OR/*OF*** $\hat{R}_2 = 50°$ ……(∠s in same segment / *∠e in dies segm*)	✓**ST** ✓ **RE** **OR/*OF*** ✓**ST** ✓ **RE** (2)
8.2.3 (d)	$\hat{R}_3 = 50°$ (tan-chord / *raaklyn-koord*) $\hat{V} = 50°$ ……..(corresp/*ooreenk* ∠s/*e*; VQ || RP) **OR/*OF*** (ext ∠ of Δ / *buite ∠ van Δ*)	✓ **ST / RE** ✓ **ST / RE** (2)
		[14]

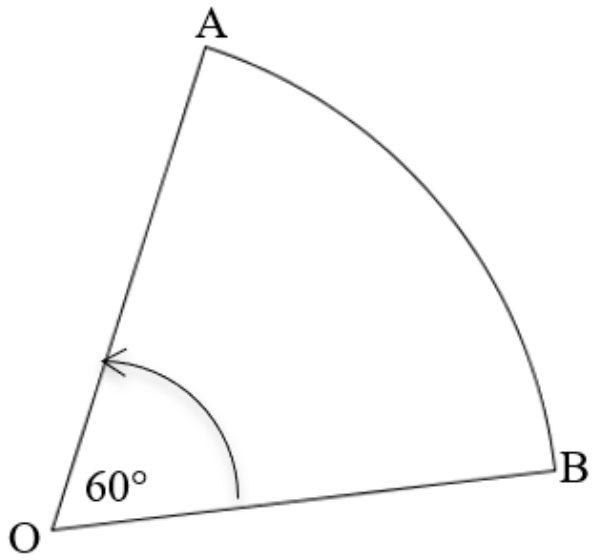
QUESTION/*VRAAG* 9

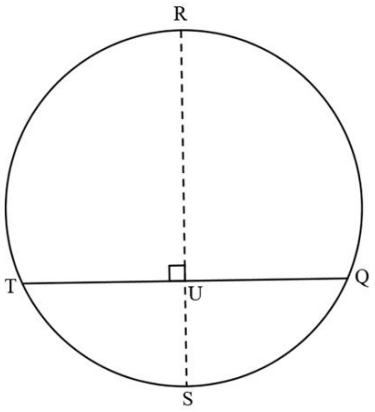
9.1	Parallel	✓ **A** (1)
9.2		
9.2.1	$\frac{AB}{AC} = \frac{AF}{AE}$ (line ‖ to 1 side of Δ / *lyn ‖ aan 1 sy van* Δ) $\frac{3}{4} = \frac{AF}{36}$ $\frac{3}{4} \times 36 = AF$ $27 = AF$	✓ **ST RE** ✓ **SF** ✓ **Answer / *Antw.*** (3)
9.2.2	$FE = AE - AF = 36 - 27 = 9$ $\therefore \frac{FE}{ED} = \frac{3}{4}$ $\therefore \frac{9}{ED} = \frac{3}{4}$ $\therefore 36 = 3ED$ $\therefore 12 = ED$	✓ **ST** ✓ **SF** ✓ **Answer / *Antw.*** (3)
9.3	In proportion / *is eweredig*	✓ (1)

9.4		
9.4.1	In ΔABF and/en ΔAEC: 1. $\hat{A} = \hat{A}$ (common ∠ / *gemene ∠*) 2. $\widehat{B_1} = \widehat{E_1}$ (ext. ∠ of cq / *buite ∠ van kvh*) 3. $\widehat{F_1} = \widehat{C_1}$ (ext. ∠ of cq / *buite ∠ van kvh*) ∴ $\Delta ABF \Vert\Vert\Delta AEC$ ($\angle\angle\angle$)	✓✓ **ST RE** ✓ **ST RE** ✓ **RE** (4)
9.4.2 (a)	$\frac{AB}{AE} = \frac{BF}{EC} = \frac{AF}{AC}$ ($\Delta ABF \Vert\Vert \Delta AEC$) $\frac{25}{60} = \frac{BF}{EC} = \frac{20}{AC}$ $\frac{25}{60} = \frac{20}{AC}$ $25AC = 1200$ $AC = 48$ ∴ $BC = 48 - 25 = 23$	✓ **ST RE** ✓ **ST** ✓ **Answer / *Antw.*** (3)
9.4.2 (b)	$\frac{AB}{BF} = \frac{25}{23+27} = \frac{25}{50} = \frac{1}{2}$ $\frac{AF}{FE} = \frac{20}{40} = \frac{1}{2}$ ∴ sides in proportion / *sye in verhouding* ∴ BF ∥ DE	✓ **ST** ✓ **ST** ✓ **Concl. / *Afleid.*** (3)
9.4.2 (c)	In ΔAEC and ΔADE: 1. $\hat{A} = \hat{A}$ (common ∠ / *gemene ∠*) 2. $\widehat{B_1} = \widehat{C_1}$ (ext. ∠ of cq / *buite ∠ van kvh*) 3. $\widehat{B_1} = \widehat{D}$ (Corresp. ∠'s = / Ooreenkomst. ∠'*e* = BF ∥ DE) $\widehat{C_1} = \widehat{D}$ $\widehat{E_1} = A\hat{E}D$ (Int. ∠'s of Δ / *Binne ∠'e van* Δ) ∴ $\Delta AEC \Vert\Vert\Delta ADE$ ($\angle\angle\angle$)	✓ **ST RE** ✓ **ST RE** ✓ **Answer / *Antw.*** (3)

9.4.2 (d)	$\Delta AEC \Vert\Vert \Delta ADE \Vert\Vert \Delta ABF$ (proved / *bewys*) $\frac{AD}{AB} = \frac{DE}{BF} = \frac{AE}{AF}$ $\frac{75}{25} = \frac{DE}{BF} = \frac{60}{20}$ $\therefore 75:25 = DE:BF$ $\therefore 3:1 = DE:BF$	✓ **ST** ✓ **ST** (2)
		[23]

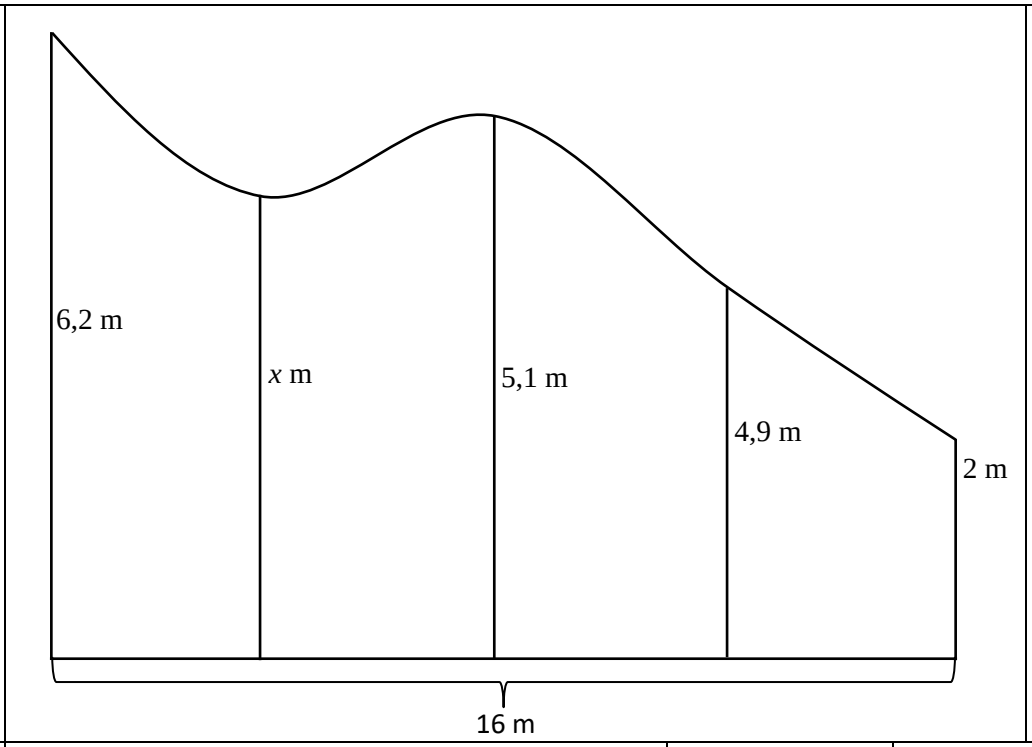
QUESTION/*VRAAG* 10

10.1		
10.1.1	$\theta = 60° \times \frac{\pi}{180°} = \frac{\pi}{3}$rad $\therefore s = r\theta$ $\therefore s = 5\left(\frac{\pi}{3}\right)$ $\therefore s = \frac{5}{3}\pi$	✓ $\frac{\pi}{3}$ **A** ✓ **F** **A** ✓ **SF** **CA** ✓ $\frac{5}{3}\pi$ **CA** (4)
10.1.2	Area = $\frac{r^2\theta}{2}$ Area = $\frac{(5)^2\left(\frac{\pi}{3}\right)}{2}$ Area = $\frac{25}{6}\pi$	✓ **F** **A** ✓ **SF** **CA** ✓ $\frac{25}{6}\pi$ **CA** (3)

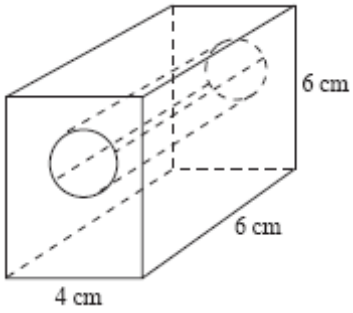
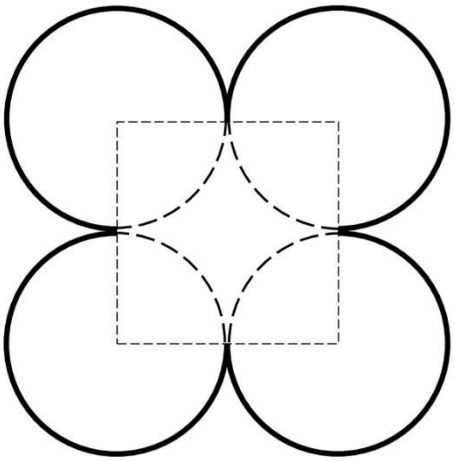
<table>
<tr><td>10.2</td><td colspan="2"> 
 
</td><td></td></tr>
<tr><td>10.2.1</td><td>$\omega = 2\pi n$
$\omega = 2\pi(30)$
$\omega = 60\pi$ rad/s</td><td>1800 rev / min
1800 rev / 60 sec
30 rev / sec</td><td>✓ Conv. / Herl. A
✓ F A
✓ SF CA
✓ $\boldsymbol{60\pi}$ CA
(4)</td></tr>
<tr><td>10.2.2</td><td>$v = \pi Dn$
$v = \pi(0{,}42)(30)$
$v = \frac{63}{5}\pi$ m/s</td><td>$D = 420 \div 1000$
$\therefore D = 0{,}42$ m
1800 rev / min
1800 rev / 60 sec
30 rev / sec</td><td>✓ Conv. / Herl. A
✓ F A
✓ SF CA
✓ $\boldsymbol{\frac{63}{5}\pi}$ CA
(4)</td></tr>
<tr><td>10.2.3</td><td>$h^2 - 4dh + x^2 = 0$
$h^2 - 4(42)h + (25)^2 = 0$
$h^2 - 168h + 625 = 0$
$\therefore h = 164{,}19$ or / of $h = 3{,}81$
$\therefore US = 3{,}81\ cm$</td><td>$250\ mm = 25\ cm$
$420\ mm = 42\ cm$</td><td>✓ Conv. / Herlei A
✓ F A
✓ SF CA
✓ Both answers of h / Beide antw. vir h CA
✓ $\boldsymbol{US = 3{,}81\ cm}$ CA
(5)</td></tr>
<tr><td></td><td colspan="2"></td><td>[20]</td></tr>
</table>

QUESTION/*VRAAG* 11

11.1



	$Area = a\left(\frac{O_1+O_n}{2} + O_2 + O_3 + \ldots + O_{n-1}\right)$ $73{,}6 = 4\left(\frac{6{,}2+2}{2} + x + 5{,}1 + 4{,}9\right)$ $73{,}6 = 4(14{,}1 + x)$ $18{,}4 = 14{,}1 + x$ $4{,}3\ m = x$	$a = \frac{16}{4}$ $a = 4$	✓ **F** **A** ✓ $\boldsymbol{a = 4}$ **A** ✓ **SF** **CA** ✓ **S** **CA** ✓ $\boldsymbol{4{,}3\ m = x}$ **CA** (5)
	OR/*OF*		**OR/*OF***
	$Area = a(m_1 + m_2 + m_3 + \ldots + m_{n-1})$ $73{,}6 = 4\left(\frac{6{,}2+x}{2} + \frac{x+5{,}1}{2} + 5 + 3{,}45\right)$ $18{,}4 = \frac{11{,}3+2x}{2} + 8{,}45$ $9{,}95 = \frac{11{,}3+2x}{2}$ $19{,}9 = 11{,}3 + 2x$ $8{,}6 = 2x$ $4{,}3\ m = x$		✓ **F** **A** ✓ $\boldsymbol{a = 4}$ **A** ✓ **SF** **CA** ✓ **S** **CA** ✓ $\boldsymbol{4{,}3\ m = x}$ **CA** (5)

11.2			
	$Vol.of\ block\ of\ wood = l \times b \times h$ $Vol.of\ block\ of\ wood = 4 \times 6 \times 6$ $Vol.of\ block\ of\ wood = 144\ cm^2$ $Vol.of\ cylinder = \pi r^2 h$ $Vol.of\ cylinder = \pi(0{,}75)^2(6)$ $Vol.of\ cylinder = 10{,}60\ cm^2$ $\therefore Vol.of\ remaining\ block = 144 - 10{,}60$ $\therefore Vol.of\ remaining\ block = 133{,}40\ cm^2$	$d = 1{,}5$ $\therefore r = 0{,}75$	✓**144 cm^2** **CA** ✓**10,60 cm^2** **CA** ✓ **Method** / ***Metode*** ✓ **133,40 cm^2** **CA** (4)
11.3			
	$circumference\ of\ a\ circle = 2\pi r$ $\therefore 200 = 2\pi r$ $\therefore \frac{200}{2\pi} = r$ $\therefore 31{,}83\ cm = r$ $dist.from\ centre\ of\ circle\ to\ midpt\ of\ poster = 21{,}21\ cm$ (Pyth) $\therefore total\ radius\ needed = 21{,}21 + 15 = 36{,}21\ cm$ $\therefore 36{,}21 > 31{,}83$ ∴ The poster will not fit in the circular space on the wall / *Die plakkaat sal nie in die sirkelvormige spasie op die muur pas nie.*		✓ radius of wall space / *radius van muur spasie* ✓ Distance / *afstand* ✓ total radius / *totale radius* ✓ Answer / *Antw.* ✓ Concl. / *Afleid.*

	OR/*OF*	**OR/*OF***
	$circumference\ of\ a\ circle = 2\pi r$ $\therefore 200 = 2\pi r$ $\therefore \frac{200}{2\pi} = r$ $\therefore 31{,}83\ cm = r$ $Area\ of\ wall = \pi r^2$ $\therefore Area\ of\ wall = \pi(31{,}83)^2$ $\therefore Area\ of\ wall = 3183\ cm^2$ Minimum required dimensions /*minimum benodigde afmetings:* 60 by 60 $Area\ of\ poster = l \times b$ $\therefore Area\ of\ poster = 60 \times 60$ $\therefore Area\ of\ poster = 3600\ cm^2$ ∴ The poster will not fit in the circular space on the wall / *Die plakkaat sal nie in die sirkelvormige spasie op die muur pas nie.*	✓ radius of wall space / *radius van muur spasie* ✓ Area of wall / *Area van muur* ✓ Dimension of poster / *Afmetings van plakkaat* ✓ Answer / *Antw.* ✓ Concl. / *Afleid.* (5)
		[14]
		TOTAL /*TOTAAL*: 150