



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE/GRADE 12**

**SEPTEMBER 2016**

**MATHEMATICS P2 / *WISKUNDE V2*  
MEMORANDUM**

**MARKS / PUNTE: 150**

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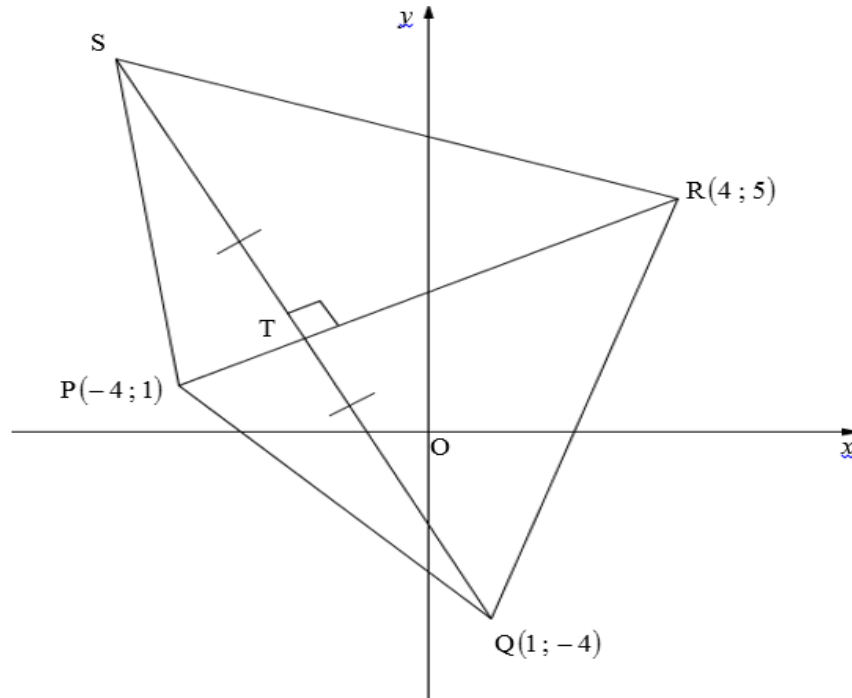
This memorandum consists of 16 pages.  
*Hierdie memorandum bestaan uit 16 bladsye.*

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QUESTION 1 / VRAAG 1										
	Day/Dag	0	1	4	6	9	12	17	19	
	Weight / Gewig	124	121	103	90	71	50	27	16	
1.1							<ul style="list-style-type: none"> <li>✓ 2-4 correct points</li> <li>✓ 5-7 correct points</li> <li>✓ plotting all points</li>   <li>✓ 2 – 4 punte korrek</li> <li>✓ 5 – 7 punte korrek</li> <li>✓ alle punte afgesteek</li> </ul>			(3)
1.2	$a = 124,84$ $b = -5,83$ $y = 124,84 - 5,83x$						<ul style="list-style-type: none"> <li>✓ A</li> <li>✓ B</li> <li>✓ equation / vergelyking</li> </ul>			(3)
1.3	$(x; y) = (8; 5; 75,25)$ $y$ -int 124,84						<ul style="list-style-type: none"> <li>✓ <math>(8; 5; 75,25)</math> and/en <math>y</math>-int / <math>y</math>-afsnit 124,84</li> <li>✓ regression line / regressielyn</li> </ul>			(2)
1.4	$124,84 - 5,83x = 80$ $5,83x = 44,84, 69$ $x = 7,69$ On the morning of the 8 <sup>th</sup> day the bar of soap will be less than 80 grams. <i>Op die oggend van die 8<sup>ste</sup> dag sal steen seep minder as 80 gram wees.</i>						<ul style="list-style-type: none"> <li>✓ substitution / vervanging</li> <li>✓ answer / antwoord</li> </ul>			(2)
1.5	$r = -0,998$						<ul style="list-style-type: none"> <li>✓ answer / antwoord</li> </ul>			(1)
1.6	Very strong negative correlation. <i>Baie sterk negatiewe korrelasie.</i>						<ul style="list-style-type: none"> <li>✓ answer / antwoord</li> </ul>			(1)
										[12]

QUESTION 2 / VRAAG 2			
5	7		
4	3 4 4		
3	1 1 1 4 6 8		
2	2 4 8 9 9		
1	5 5 6 7		
0	3 5		
2.1	21 learners / <i>leerders</i>	✓ answer / <i>antwoord</i>	(1)
2.2	3 pages / <i>bladsye</i>	✓ answer / <i>antwoord</i>	(1)
2.3	$\bar{x} = 28,19$	✓✓ answer / <i>antwoord</i>	(2)
2.4	$\sigma = 13,12$	✓ answer / <i>antwoord</i>	(1)
2.5	$(28,19 - 13,12; 28,19 + 13,12)$ $(15,07; 41,31)$ $\therefore$ 8 learners are outside one standard deviation <i>8 leerders is buite een standaardafwyking</i> $\therefore \frac{8}{21} \times 100 = 38,10\%$	✓ interval / <i>interval</i> ✓ 8 learners / <i>leerders</i> ✓ 28,57%	(3)
			<b>[8]</b>

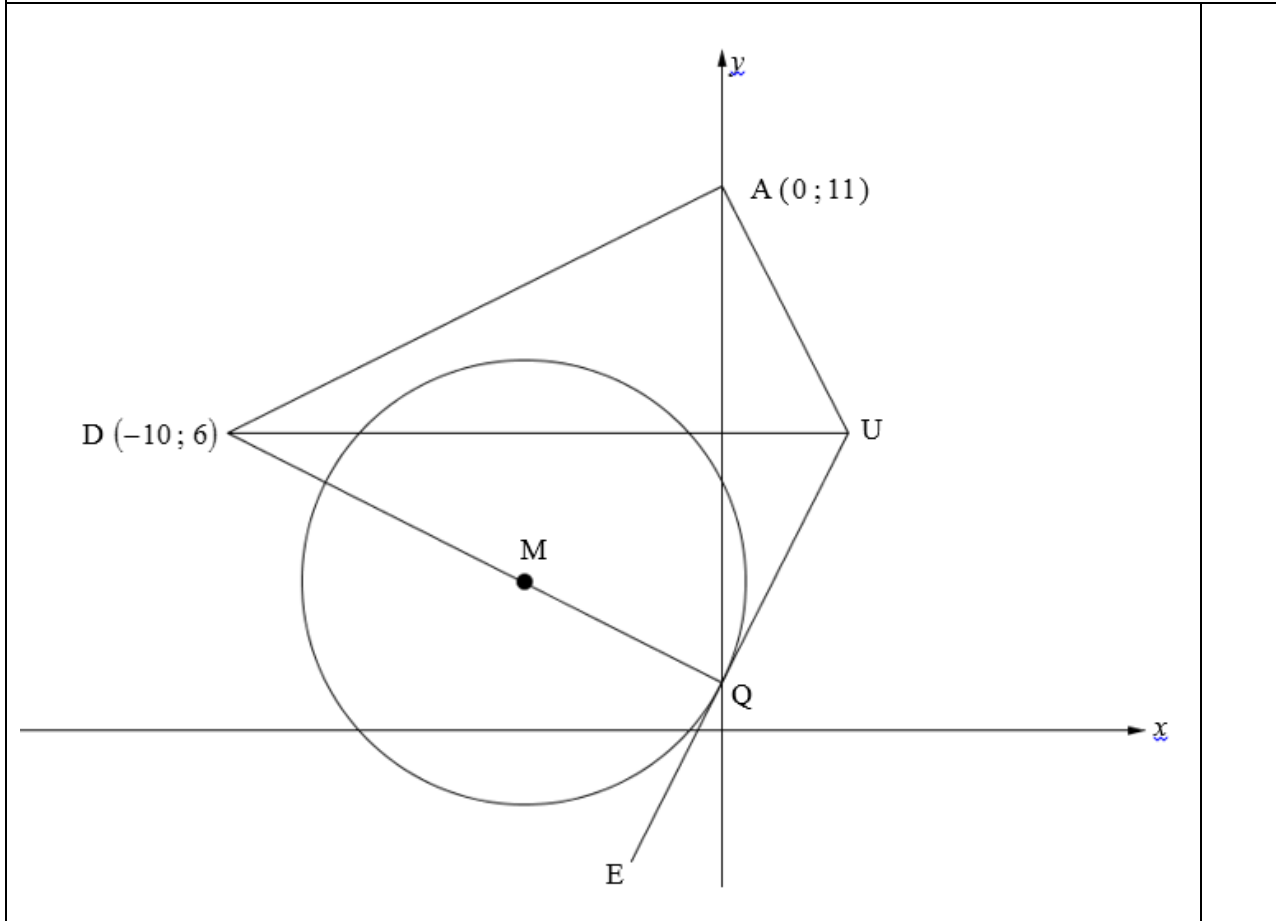
## QUESTION 3 / VRAAG 3



3.1	$m_{PR} = \frac{5-1}{4+4}$ $= \frac{1}{2}$	<ul style="list-style-type: none"> <li>✓ subst. P and R into correct formula <i>verv. van P en R in korrekte formule</i></li> <li>✓ <math>m_{PR} = \frac{1}{2}</math></li> </ul>	(2)
3.2	$m_{SQ} = -2$ $SP \perp PT$ $y + 4 = -2(x - 1)$ $y = -2x - 2$	<ul style="list-style-type: none"> <li>✓ <math>m_{SQ} = -2</math></li> <li>✓ subst. m and Q into correct formula <i>verv. van m en Q in korrekte formule</i></li> <li>✓ <math>y = -2x - 2</math></li> </ul>	(3)
3.3	Equation of PR / <i>Vergelyking van PR</i> $y - 1 = \frac{1}{2}(x + 4)$ $y = \frac{1}{2}x + 3$ $-2x - 2 = \frac{1}{2}x + 3$ $-4x - 4 = x + 6$ $-5x = 10$ $\therefore x = -2$ $y = -2(-2) - 2 = 2$  <p style="text-align: center;"><b>OR/OF</b></p>	<ul style="list-style-type: none"> <li>✓ substituting m and P into equation of a str. line / <i>vervanging van m en P in die vergelyking van reguitlyn</i></li> <li>✓ equation of PR / <i>vergelyking van PR</i></li> <li>✓ equating PR and SQ / <i>gelykstel van PR en SQ</i></li> <li>✓ x-value / <i>x-waarde</i></li> <li>✓ y-value / <i>y-waarde</i></li> </ul>	
		<ul style="list-style-type: none"> <li>✓ substituting m and R into equation of a</li> </ul>	

	$y - 5 = \frac{1}{2}(x - 4)$ $2y - 10 = x - 4$ $2y = x + 6$ $y = \frac{1}{2}x + 3$ $-2x - 2 = \frac{1}{2}x + 3$ $-4x - 4 = x + 6$ $-5x = 10$ $\therefore x = -2$ $y = -2(-2) - 2 = 2$	<p>str. line / <i>vervanging van m en R in die vergelyking van reguitlyn</i></p> <ul style="list-style-type: none"> <li>✓ equation of PR / <i>vergelyking van PR</i></li> <li>✓ equating PR and SQ / <i>gelykstel van PR en SQ</i></li> <li>✓ x-value / <i>x-waarde</i></li> <li>✓ y-value / <i>y-waarde</i></li> </ul>	(5)
3.4	$-2 = \frac{x+1}{2} \quad 2 = \frac{y-4}{2}$ $\therefore x = -5 \quad \text{and/en} \quad y = 8$ <p>S (-5 ; 8)</p>	<ul style="list-style-type: none"> <li>✓ substituting into correct formula / <i>vervanging in korrekte formule</i></li> <li>✓ x-value / <i>x-waarde</i></li> <li>✓ y-value / <i>y-waarde</i></li> </ul>	(3)
3.5	$SQ = \sqrt{(-5-1)^2 + (8+4)^2}$ $= 6\sqrt{5}$ $PT = \sqrt{(-2+4)^2 + (2-1)^2}$ $= \sqrt{5}$ $\text{Area } \Delta PQS = \frac{1}{2} \times 6\sqrt{5} \times \sqrt{5}$ $= 15 \text{ unit}^2 / \text{eenhede}^2$ <p style="text-align: center;"><b>OR/OF</b></p> $\therefore \text{area of } \Delta PQS = ST \times PT$ $= 3\sqrt{5} \times \sqrt{5}$ $= 15 \text{ unit}^2 / \text{eenhede}^2$	<ul style="list-style-type: none"> <li>✓ subst. into correct form / <i>verv. in korrekte formule</i></li> <li>✓ <math>SQ = 6\sqrt{5}</math></li> <li>✓ <math>PT = \sqrt{5}</math></li> <li>✓ Subt into correct form. / <i>verv. in korrekte formule</i></li> <li>✓ <math>15 \text{ units}^2 / \text{eenhede}^2</math></li> <li>✓ <math>SQ = 6\sqrt{5}</math></li> <li>✓ <math>ST = 3\sqrt{5}</math></li> <li>✓ <math>PT = \sqrt{5}</math></li> <li>✓ subst into form / <i>verv. in formule</i></li> <li>✓ <math>15 \text{ units}^2 / \text{eenhede}^2</math></li> </ul>	(5)
			<b>[18]</b>

## QUESTION 4 / VRAAG 4



4.1	$x^2 + 8x + 16 + y^2 - 6y + 9 = 20$ $(x + 4)^2 + (y - 3)^2 = 20$ $\therefore M(-4; 3)$	<ul style="list-style-type: none"> <li>✓ completing square <i>kwadraatsvoltooiing</i></li> <li>✓ <math>(x + 4)^2 + (y - 3)^2 = 20</math></li> <li>✓ <i>x</i>-coordinate / <i>x</i>-koördinaat</li> <li>✓ <i>y</i>-coordinate / <i>y</i>-koördinaat</li> </ul>	(4)
4.2	$(0 + 4)^2 + (y - 3)^2 = 20$ $(y - 3)^2 = 4$ $y = 3 \pm 2$ $\therefore y = 1$ $Q(0; 1)$	<ul style="list-style-type: none"> <li>✓ subst. <math>x = 0</math> into circle equation <i>verv. <math>x = 0</math> in sirkel vergelyking</i></li> <li>✓ <math>(y - 3)^2 = 4</math></li> <li>✓ <math>y = 1</math></li> </ul>	(3)
4.3	$m_{\text{radius}} = \frac{3 - 1}{-4 - 0} = -\frac{1}{2}$ $m_{\text{tan/rkl}} = 2$ $y - 1 = 2(x - 0) \quad \begin{array}{l} \text{[tangent } \perp \text{ radius]} \\ \text{[raaklyn } \perp \end{array}$ $\therefore y = 2x + 1$	<ul style="list-style-type: none"> <li>✓ <math>m_{\text{rad}} = -\frac{1}{2}</math></li> <li>✓ <math>m_{\text{tan}} = 2</math> / <math>m_{\text{raaklyn}} = 2</math></li> <li>✓ subst. <math>m_{\text{tan/rkl}} = 2</math> and <math>Q</math> into correct form. / <i>verv. <math>m_{\text{tan/rkl}} = 2</math></i> <i>en <math>Q</math> in korrekte formule.</i></li> <li>✓ equation / <i>vergelyking</i></li> </ul>	(4)
4.4	$y = 6$	✓ answer / <i>antwoord</i>	(1)

4.5	$6 = 2x + 1$ $x = \frac{5}{2}$ $U\left(\frac{5}{2}; 6\right)$	$\checkmark 6 = 2x + 1$ $\checkmark x = \frac{5}{2}$	(2)
4.6	$m_{AU} = \frac{11-6}{0-\frac{5}{2}}$ $= -2$ $m_{AD} = \frac{6-11}{-10-0}$ $= \frac{1}{2}$ $m_{AU} \times m_{DA} = -2 \times \frac{1}{2}$ $= -1$ $\therefore AU \perp DA$ $\therefore \hat{A} = 90^\circ$ $D\hat{Q}U = 90^\circ$ [tangent $\perp$ radius] / [raaklyn $\perp$ radius] $\therefore$ QUAD is a cyclic quad. [opp. $\angle^s$ add up to $180^\circ$ ] <i>QUAD is 'n koordevierhoek [teenoorst. <math>\angle^e</math> se som is <math>180^\circ</math>]</i>	$\checkmark m_{AU} = -2$ $\checkmark m_{AD} = \frac{1}{2}$ $\checkmark m_{AU} \times m_{DA} = -1$ $\checkmark \hat{A} = 90^\circ$ $\checkmark D\hat{Q}U = 90^\circ$ $\checkmark R$	(6)
			<b>[20]</b>

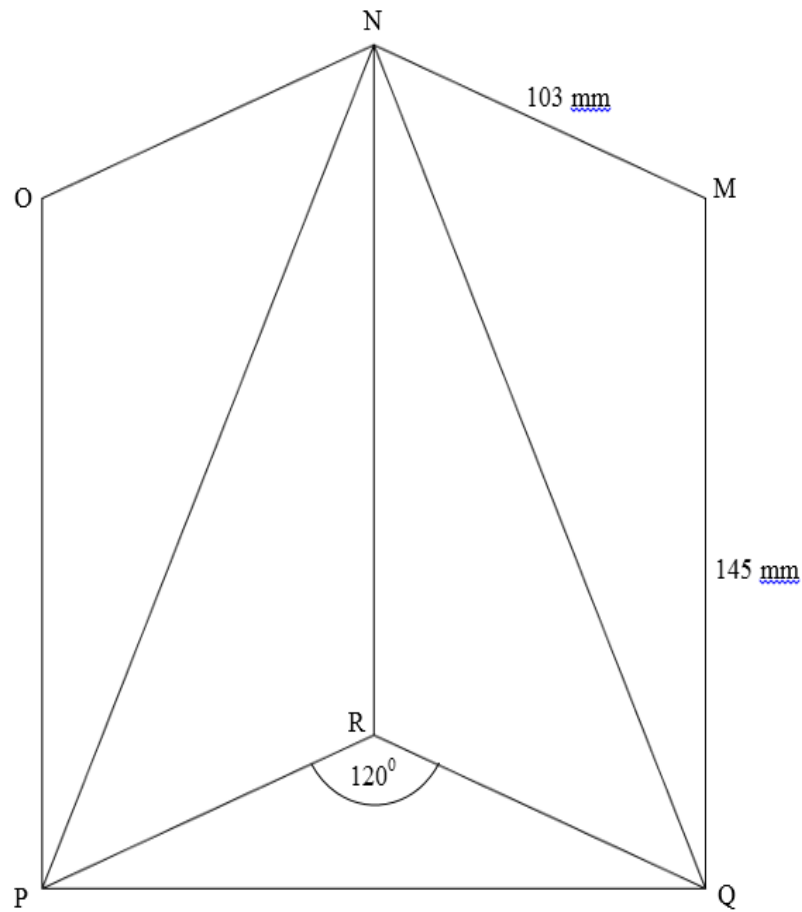
QUESTION 5 / VRAAG 5			
5.1.1	$\sin(-52^\circ) = -\sin 52^\circ$ $= \sqrt{1-t^2}$	<ul style="list-style-type: none"> <li>✓ <math>-\sin 52^\circ</math></li> <li>✓ ✓ answer</li> </ul>	(3)
5.1.2	$\cos(2 \cdot 19^\circ) = \cos 38^\circ$ $2 \cos^2 19^\circ - 1 = \cos 38^\circ$ $\cos 19^\circ = \sqrt{\frac{\cos 38^\circ + 1}{2}}$ $\therefore \cos 19^\circ = \sqrt{\frac{\sqrt{1-t^2} + 1}{2}}$	<ul style="list-style-type: none"> <li>✓ <math>\cos(2 \cdot 19^\circ) = \cos 38^\circ</math></li> <li>✓ <math>\cos(2 \cdot 19^\circ) = 2 \cos^2 19^\circ - 1</math></li> <li>✓ simplification / vereenvoudiging</li> <li>✓ answer / antwoord</li> </ul>	(4)
5.2	$\frac{2 \cos(180^\circ + x) \cdot \sin(180^\circ - x) \cdot \sin 74^\circ}{\sin(x + 360^\circ) \cdot \sin 37^\circ \cdot \sin 53^\circ \cdot \sin(x - 90^\circ)}$ $= \frac{2(-\cos x) \cdot \sin x \cdot \sin 74^\circ}{\sin x \cdot \sin 37^\circ \cdot \cos 37^\circ \cdot (-\cos x)}$ $= \frac{2 \sin 74^\circ}{2 \sin 74^\circ}$ $= 1$ <p style="text-align: center;">OR/OF</p> $\frac{2 \cos(180^\circ + x) \cdot \sin(180^\circ - x) \cdot \sin 74^\circ}{\sin(x + 360^\circ) \cdot \sin 37^\circ \cdot \sin 53^\circ \cdot \sin(x - 90^\circ)}$ $= \frac{2(-\cos x) \cdot \sin x \cdot \sin(2 \times 37^\circ)}{\sin x \cdot \sin 37^\circ \cdot \cos 37^\circ \cdot (-\cos x)}$ $= \frac{2 \sin(2 \times 37^\circ)}{\sin 37^\circ \cdot \cos 37^\circ}$ $= \frac{4 \sin 37^\circ \cdot \cos 37^\circ}{\sin 37^\circ \cdot \cos 37^\circ}$ $= 4$	<ul style="list-style-type: none"> <li>✓ <math>-\cos x</math></li> <li>✓ <math>\sin x</math></li> <li>✓ <math>\sin x</math></li> <li>✓ <math>\cos 37^\circ</math></li> <li>✓ <math>-\cos x</math></li> <li>✓ <math>\frac{1}{2} \sin 74^\circ</math></li> <li>✓ answer / antwoord</li> <li>✓ <math>-\cos x</math></li> <li>✓ <math>\sin x</math></li> <li>✓ <math>\sin x</math></li> <li>✓ <math>\cos 37^\circ</math></li> <li>✓ <math>-\cos x</math></li> <li>✓ <math>2 \sin(2 \times 37^\circ)</math></li> <li>✓ answer / antwoord</li> </ul>	(7)



5.3.1	$1 - \cos 2x = 0$ $\cos 2x = 1$ $\therefore 2x = 0^\circ + k \cdot 360^\circ$ $x = 0^\circ + k \cdot 180^\circ; k \in \mathbb{Z}$	$\checkmark 1 - \cos 2x = 0$ $\checkmark 2x = 0^\circ + 360^\circ \cdot k$ $\checkmark x = 0^\circ + 180^\circ \cdot k;$ $\checkmark k \in \mathbb{Z}$	(4)
5.3.2	$\text{L.H.S/LK} = \frac{2\sin x}{2(1 - \cos 2x)}$ $= \frac{2\sin x}{2 - 2\cos 2x}$ $= \frac{2\sin x}{2 - 2(1 - 2\sin^2 x)}$ $= \frac{2\sin x}{2 - 2 + 2\sin^2 x}$ $= \frac{2\sin x}{2\sin^2 x}$ $= \frac{1}{\sin x}$	$\checkmark 1 - 2\sin^2 x$ $\checkmark \text{removing brackets}$ $\checkmark \text{verwyder hakies}$ $\checkmark 2\sin^2 x$	(3)
			<b>[21]</b>

QUESTION 6 / VRAAG 6			
6.1	$\sin(x + 60^\circ) = \sin(90^\circ - 2x)$ $\therefore x + 60^\circ = 90^\circ - 2x + 360^\circ.k \text{ or/of } x + 60^\circ = 180^\circ - (90^\circ - 2x) + 360^\circ.k$ $3x = 30^\circ + 360^\circ.k \quad \text{or/of} \quad x = -30^\circ + 360^\circ.k$ $x = 10^\circ + 120^\circ.k \quad ; k \in Z$ $\therefore x = -30^\circ ; 10^\circ ; 130^\circ$ <p style="text-align: center;"><b>OR/OF</b></p> $\cos 2x = \cos(30^\circ - x)$ $2x = 30^\circ - x + 360^\circ.k \quad \text{or} \quad 2x = -(30^\circ - x) + 360^\circ.k \quad ; k \in Z$ $3x = 30^\circ + 360^\circ.k \quad \text{or} \quad x = -30^\circ + 360^\circ.k$ $\therefore x = -30^\circ ; 10^\circ ; 130^\circ$	✓ co-ratio / ko-funksie  ✓ both gen. solns beide algemene oplossings ✓ $-30^\circ$ ✓ $10^\circ$ ✓ $130^\circ$  ✓ co-ratio / ko-funksie  ✓ both gen. solns beide algemene oplossings  ✓ $-30^\circ$ ✓ $10^\circ$ ✓ $130^\circ$	(5)
6.2		g: ✓ x-intercept. x-afsnit ✓ y-intercept. y-afsnit ✓ shape / vorm  f: ✓ x-intercept. x-afsnit ✓ y-intercept. y-afsnit ✓ shape / vorm	(6)
6.3	240°	✓ answer / antwoord	(1)
6.4	$h(x) = \cos(2x - 90^\circ) - 1 = \sin 2x - 1$	✓ substitution / vervanging ✓ $\sin 2x - 1$	(2)
			<b>[14]</b>

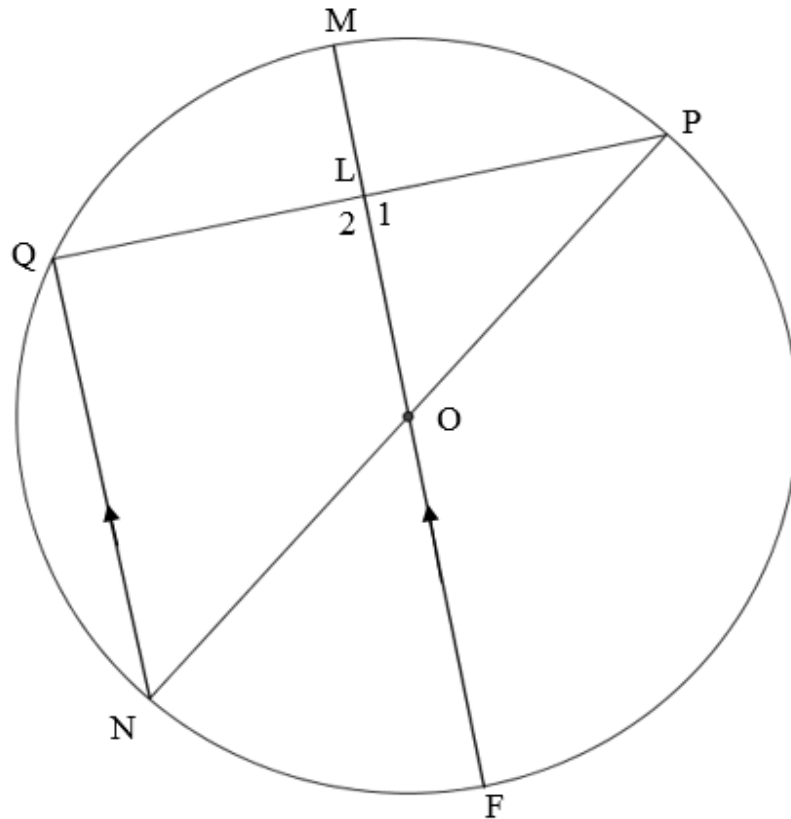
## QUESTION 7 / VRAAG 7



7.1	$NP^2 = ON^2 + OP^2$ $= (103)^2 + (145)^2$ $\therefore NP = 177,86$	<ul style="list-style-type: none"> <li>✓ using Pyth theorem correctly <i>korrekte gebruik van stelling van Pythagoras</i></li> <li>✓ answer / <i>antwoord</i></li> </ul>	(2)
7.2	$PQ^2 = (103)^2 + (103)^2 - 2(103)(103)\cos(120^\circ)$ $PQ = 178,40$	<ul style="list-style-type: none"> <li>✓ subst. into cosine rule <i>verv. in cosinus formule</i></li> <li>✓ answer / <i>antwoord</i></li> </ul>	(2)
7.3	$\cos \hat{N} = \frac{(177,86)^2 + (177,86)^2 - (178,40)^2}{2(177,86)(177,86)}$ $\therefore \hat{N} = 60,20^\circ$	<ul style="list-style-type: none"> <li>✓ substitution / <i>vervangings</i></li> <li>✓ <math>\hat{N}</math></li> </ul>	(2)
			<b>[6]</b>

**QUESTION 8 / VRAAG 8**8.1 Bisects the chord / *Halveer die koord* ✓ answer / *antwoord* (1)

8.2



8.2.1  $\hat{Q} = 90^\circ$  [ $\angle$  in semi circle.] / [ $\angle$  in halwe sirkel]  
 $\hat{L}_1 = \hat{Q} = 90^\circ$  [corresp.  $\angle^s$ ,  $QN \parallel LO$ ]  
 [ooreenk.  $\angle^e$ ,  $QN \parallel LO$ ]  
 $QL = LP$  [line from centre perp. to chord]  
 [lynstuk vanaf middelpnt is loodreg op koord]

✓ S ✓ R  
 ✓ S/R

✓ R

(4)

8.2.2  $MF = 8ML$ 

✓

(1)

8.2.3  $OP^2 = OL^2 + LP^2$   
 $(4ML)^2 = (3ML)^2 + 7^2$   
 $16ML^2 = 9ML^2 + 49$   
 $7ML^2 = 49$   
 $\therefore ML = \sqrt{7}$

✓ using Pyth correctly  
 korrekte gebruik van  
 Pythagoras

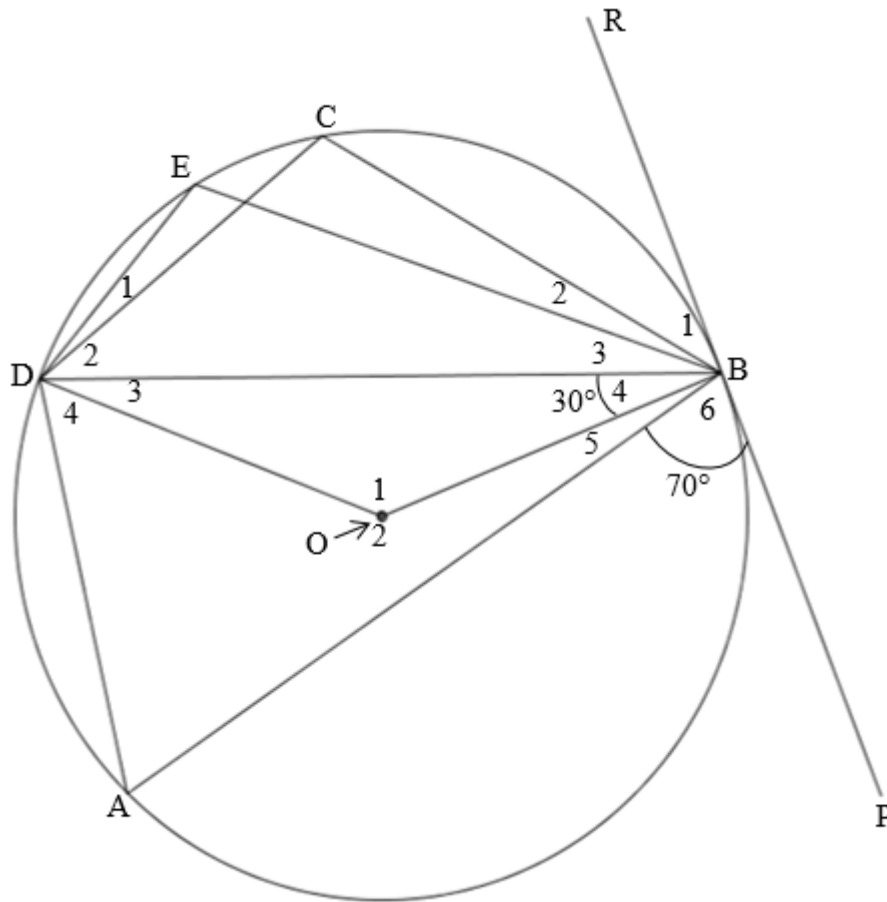
✓ simplification /  
 vereenvoudiging

✓ ML

(3)

**[9]**

QUESTION 9 / VRAAG 9



9.1	$\hat{D}_3 = 30^\circ$ [ $\angle$ s opp equal sides] / [ $\angle$ teenoor gelyke sye] $\therefore \hat{O}_1 = 120^\circ$ [sum of $\angle$ s of a $\Delta$ .] / [som v/d $\angle$ van 'n $\Delta$ ]	✓ S ✓R ✓ S/R	(3)
9.2	$\hat{A} = 60^\circ$ [ $\angle$ at centre = 2 $\angle$ at circumf.] / [middelpunts $\angle = 2 \times$ omtrekshoek]	✓ S ✓R	(2)
9.3	$\hat{C} = 120^\circ$ [opp. $\angle$ s of cyclic quad.] / [teenoorst. $\angle$ van k.v]	✓ S ✓R	(2)
9.4	$\hat{A}DB = 70^\circ$ [tan chord theorem.] / [raaklyn koord stelling]	✓ S ✓R	(2)
			<b>[9]</b>

**QUESTION 10 / VRAAG 10**

<p>10.1</p>		<p>✓ constr. konstr.</p>	
	<p> <math>\hat{U}_2 = 90^\circ - \hat{U}_1</math> [tan <math>\perp</math> radius.] / [<i>raaklyn <math>\perp</math> radius</i>]  <math>\hat{Z} = 90^\circ</math> [<math>\angle</math> in semi circle] / [<i><math>\angle</math> in halwe sirkel</i>]  <math>\hat{S} = 180^\circ - (90^\circ - \hat{U}_1) - 90^\circ</math> [sum of <math>\angle</math>s of a <math>\Delta</math>]  <i>[som van die <math>\angle</math>e van 'n <math>\Delta</math>]</i>  <math>\therefore \hat{S} = \hat{U}_1</math>  <math>\hat{S} = \hat{Y}</math> [<math>\angle</math>s in same segment] / [<i><math>\angle</math>e in dieselfde segment</i>]  <math>\therefore \hat{U}_1 = \hat{Y}</math> </p>	<p>✓ S/R ✓ S/R ✓ S/R ✓ S/R</p>	<p>(5)</p>

<p>10.2</p>			
<p>10.2.1</p>	$\hat{A}_2 = x$ [∠s opp. = sides] / [∠ teenoor gelyke sye] $\hat{C}_2 = \hat{A}_2 = x$ [tan chord theo.] / [raaklyn koord stelling] $\hat{A}_1 = \hat{C}_1$ [tan chord theo.] / [raaklyn koord stelling] $\hat{C}_2 = \hat{S}_1$ [alt. ∠s, CB ∥ TS] / [verw. ∠, CB ∥ TS] $\hat{C}_1 = \hat{T}$ [corresp ∠s, CB ∥ TS] / [ooreenk. ∠, CB ∥ TS]	<p>✓ S/R                      ✓ S/R                      ✓ S/R                      ✓ S/R                      ✓ S/R</p>	<p>(5)</p>
<p>10.2.2</p>	$\hat{S}_1 = \hat{T} = x$ [proven in 10.2.1] / [bewys in 10.2.1] $\therefore CS = CT$ [sides opp. = ∠s] / [sy teenoor gelyke hoeke]	<p>✓ S                      ✓ R</p>	<p>(2)</p>
<p>10.2.3</p>	$\frac{AR}{BR} = \frac{AT}{CT}$ [line ∥ to one side of a Δ] [lynstuk ∥ aan een sy van 'n Δ] $CS = CT$ [proved in 10.2.2] / [bewys in 10.2.2] $AT = \frac{3}{2} \times 4$ $AT = 6\text{cm}$	<p>✓ S/R                      ✓ CS = CT                      ✓ substitution                      vervanging                      ✓ AT</p>	<p>(4)</p>
			<p>[16]</p>

QUESTION 11 / VRAAG 11			
11.1	$\hat{A}_1 = \hat{C}_2$ [tan chord theo.] / [raaklyn koord stelling] $= \hat{Z}$ [tan chord theo.] / [raaklyn koord stelling] $\therefore \hat{C}_2 = \hat{Z}$ [both = x] / [beide = x] $\therefore BC \parallel RZ$ [corresp. $\angle$ s =] / [ooreenk. $\angle^e$ =]	✓ S ✓R ✓ S/R ✓ R	(4)
11.2	$\hat{Z} = \hat{P}$ [ $\angle$ s in same segment] / [ $\angle^e$ in dieselfde segment] $= \hat{C}_2$ [corresp. $\angle$ s ; $BC \parallel RZ$ ] / [ooreenk. $\angle^e$ ; $BC \parallel RZ$ ] $\therefore BC$ is a tangent to circle ACP [conv. of tan chord theorem] <i>BC is 'n raaklyn aan sirkel ACP [ omgekeerde van raaklyn koord stelling]</i>	✓ S/R ✓ S  ✓ R	(3)
11.3	$\hat{B}_1 = \hat{D}_2$ [ext. $\angle$ of a cyclic quad.] <i>[buite <math>\angle</math> van koordevierhoek]</i> $\hat{R} = \hat{B}_1$ [corresp. $\angle$ s , $BC \parallel RZ$ ] <i>[ooreenk. <math>\angle^e</math> , <math>BC \parallel RZ</math>]</i> $\therefore \hat{R} = \hat{D}_2$ $\hat{Z} = \hat{P}$ [ $\angle^s$ in same segment] <i>[<math>\angle^e</math> in dieselfde segment]</i> $\hat{A}_2 = \hat{C}_4$ [ $3^{rd}$ $\angle$ ] / [ $3^{de}$ $\angle$ ] $\therefore \triangle RZA \parallel \triangle DPC$ [equiangular or $\angle\angle\angle$ ] <i>[gelykhoekig of <math>\angle\angle\angle</math>]</i>	✓ S ✓R ✓ S/R ✓ S/R ✓ R	(5)
11.4	$\frac{ZA}{PC} = \frac{RA}{DC}$ [similar $\Delta^s$ ] / [gelykvormige $\Delta^e$ ] $\therefore RA = \frac{ZA \times DC}{PC} \dots (1)$ $\frac{AR}{AB} = \frac{AZ}{AC}$ [line $\parallel$ to one side of a $\Delta$ ] <i>[lynstuk <math>\parallel</math> aan een sy van 'n <math>\Delta</math>]</i> $\therefore AR = \frac{AZ \times AB}{AC} \dots (2)$ $\frac{ZA \times DC}{PC} = \frac{AZ \times AB}{AC}$ $\therefore \frac{DC}{PC} \times \frac{AC}{AB} = 1$	✓ S/R ✓ $RA = \frac{ZA \times DC}{PC}$ ✓ S/R  ✓ $RA = \frac{AZ \times AB}{AC}$ ✓ simplification	(5)
			[17]
		<b>TOTAL/TOTAAL:</b>	<b>150</b>