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# basic education

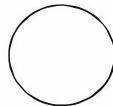
Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

Candidate Barcode label/Stafeskodeplakker

**NSC Answer Book**  
**NSS-antwoordboek**

National Senior Certificate/*Nasionale Senior Sertifikaat* (Grade 12/Graad 12) – November 2023

CENTRE NUMBER <i>SENTRUMNOMMER</i>						
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EXAMINATION NUMBER <i>EKSAMENNOMMER</i>								
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DATE <i>DATUM</i>	
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BOOK NUMBER <i>BOEKNOMMER</i>		OF <i>VAN</i>		BOOKS <i>BOEKE</i>
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SUBJECT CODE <i>VAKKODE</i>			
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PAPER NUMBER <i>VRAESTELNOMMER</i>	2
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SUBJECT NAME <i>VAKNAAM</i>	<b>MATHEMATICS/WISKUNDE</b>
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MARKER/NASIENER			MODERATOR'S INITIALS IN RELEVANT BLOCK <i>MODERATOR SE VOORLETTERS, IN RELEVANTE BLOKKIE</i>									
Question <i>Vraag</i>	Marks <i>Punte</i>	Marker's Code & Initials <i>Nasiener se kode &amp; Voorletters</i>	Marks <i>Punte</i>	SM	Marks <i>Punte</i>	DCM <i>AHN</i>	Marks <i>Punte</i>	CM <i>HN</i>	Marks <i>Punte</i>	IM	Marks <i>Punte</i>	EM
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
			<b>TOTAL <i>TOTAAL</i></b>									

CONTROLLED AND CERTIFIED CORRECT  
(SURNAME AND INITIALS OF EA)  
*GEKONTROLEER EN AS KORREK  
GESERTIFISEER (VAN EN VOORLETTERS  
VAN EA)*

READ INSTRUCTIONS ON THE NEXT PAGE.  
*LEES INSTRUKSIES OP VOLGENDE BLADSY.*This answer book consists of 23 pages./*Hierdie antwoordboek bestaan uit 23 bladsye.*

**SA EXAM  
PAPERS**

PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY	VOLG ASSEBLIEF HIERDIE INSTRUKSIES NOUKEURIG
<ol style="list-style-type: none"> <li>Clearly write your examination number and centre number in the space provided and attach your barcode label in the space provided.</li> <li>Remember that your own name (or the name of your school) may not appear anywhere on or in this answer book.</li> <li>Answer ALL questions in the spaces provided.</li> <li>No pages may be torn from this answer book.</li> <li>Read the instructions printed on your timetable carefully as well as any other instructions which may be given in each examination paper.</li> <li>Candidates may not retain an answer book or remove it from the examination room.</li> <li>Answers must be written in black/blue ink as distinctly as possible. Do not write in the margins.</li> <li>Write the numbers of the questions you have answered on the front cover of the answer book where marks are to be recorded.</li> <li>If you require additional space for your answers:           <ol style="list-style-type: none"> <li>Use the additional space provided at the end of the answer book.</li> <li>When answering a question in the additional space, indicate clearly the question number in the column on the LHS.</li> <li>Rule off after each answer.</li> </ol> </li> <li>Draw a neat line through any work/rough work that must not be marked.</li> </ol>	<ol style="list-style-type: none"> <li><i>Skryf jou eksamennummer en sentrumnommer duidelik in die ruimtes soos verskaf en plak jou stafieskodeplakker in die ruimte soos verskaf.</i></li> <li><i>Onthou dat jou eie naam (of die naam van jou skool) nie op of in hierdie antwoordboek mag voorkom nie.</i></li> <li><i>Beantwoord ALLE vrae in die ruimtes wat voorsien is.</i></li> <li><i>Geen bladsye mag uit hierdie antwoordboek geskeur word nie.</i></li> <li><i>Lees die instruksies wat op jou eksamenrooster gedruk is, sorgvuldig deur, asook enige ander instruksies wat op elke eksamenvraestel gegee word.</i></li> <li><i>Geen antwoordboek mag deur die kandidaat behou of uit die eksamenlokaal verwijder word nie.</i></li> <li><i>Skryf die antwoorde so duidelik moontlik met swart/blou ink. Laat die kantlyne oop.</i></li> <li><i>Skryf die nommers van die vrae wat jy beantwoord het op die voorblad van die antwoordboek waar die punte aangebring word.</i></li> <li><i>In geval jy bykomende ruimte benodig vir jou antwoorde:</i> <ol style="list-style-type: none"> <li><i>Gebruik die bykomende ruimte wat aan die einde van die antwoordboek voorsien word.</i></li> <li><i>As 'n vraag in die bykomende ruimte beantwoord word, dui duidelik die vraagnommer in die kolom aan die LK aan.</i></li> <li><i>Trek 'n lyn na elke antwoord.</i></li> </ol> </li> <li><i>Trek 'n netjiese lyn deur enige werk/rofwerk wat nie nagesien moet word nie.</i></li> </ol>



**QUESTION/VRAAG 1**

<b>Distance travelled (in km)/ Afstand gery (in km) (x)</b>	180	200	400	600	170	350	270	300
<b>Amount of rest time (in minutes)/ Hoeveelheid rustyd (in minute) (y)</b>	20	25	55	120	15	50	40	45

	<b>Solution/Oplossing</b>	<b>Marks Punte</b>
1.1		
1.2		(3)
1.3		(2)
1.4		(1)
		(1)



1.5

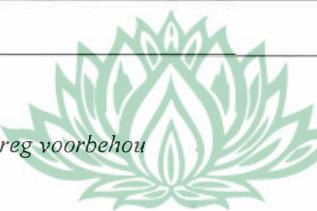
100	150	130	200	50	180	200	190
-----	-----	-----	-----	----	-----	-----	-----

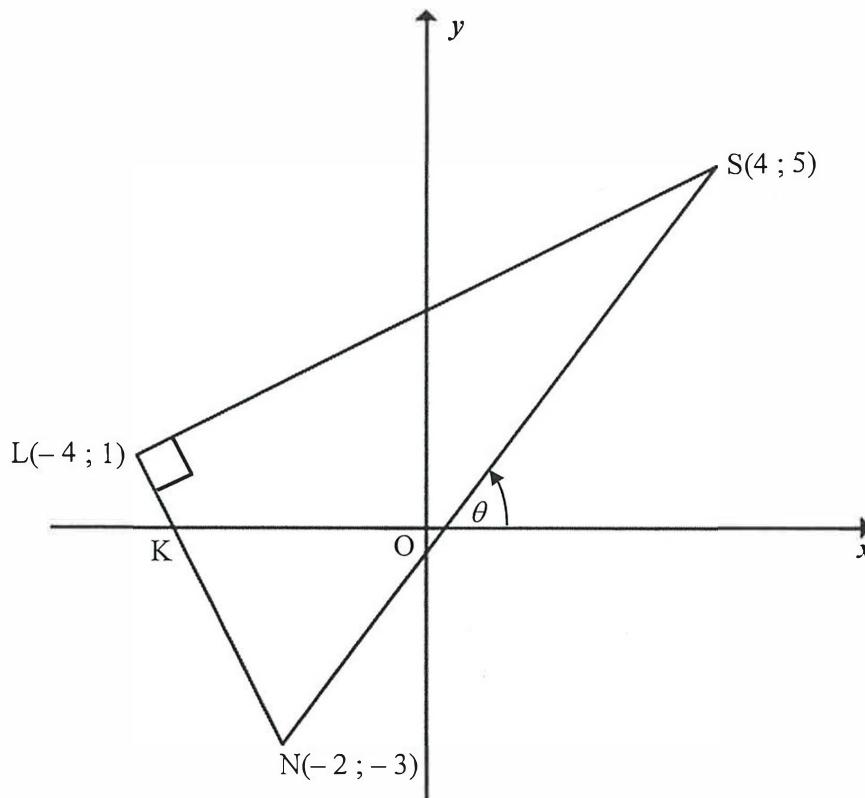
	Solution/ <i>Oplossing</i>	Marks <i>Punte</i>
1.5.1		(2)
1.5.2		(1)
1.5.3		(2)
		[12]



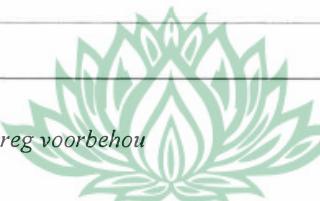
**QUESTION/VRAAG 2.**

	Solution/ <i>Oplossing</i>			Marks <i>Punte</i>																		
2.1	<table border="1"> <thead> <tr> <th>Number of glasses of water drank per day/ <i>Aantal glase water per dag gedrink</i></th><th>Number of staff members/ <i>Getal personeellede</i></th><th>Cumulative frequency/ <i>Kumulatiewe frekwensie</i></th></tr> </thead> <tbody> <tr> <td><math>0 \leq x &lt; 2</math></td><td>5</td><td></td></tr> <tr> <td><math>2 \leq x &lt; 4</math></td><td>15</td><td></td></tr> <tr> <td><math>4 \leq x &lt; 6</math></td><td>13</td><td></td></tr> <tr> <td><math>6 \leq x &lt; 8</math></td><td>5</td><td></td></tr> <tr> <td><math>8 \leq x &lt; 10</math></td><td>2</td><td></td></tr> </tbody> </table>	Number of glasses of water drank per day/ <i>Aantal glase water per dag gedrink</i>	Number of staff members/ <i>Getal personeellede</i>	Cumulative frequency/ <i>Kumulatiewe frekwensie</i>	$0 \leq x < 2$	5		$2 \leq x < 4$	15		$4 \leq x < 6$	13		$6 \leq x < 8$	5		$8 \leq x < 10$	2				(2)
Number of glasses of water drank per day/ <i>Aantal glase water per dag gedrink</i>	Number of staff members/ <i>Getal personeellede</i>	Cumulative frequency/ <i>Kumulatiewe frekwensie</i>																				
$0 \leq x < 2$	5																					
$2 \leq x < 4$	15																					
$4 \leq x < 6$	13																					
$6 \leq x < 8$	5																					
$8 \leq x < 10$	2																					
2.2				(1)																		
2.3				(1)																		
2.4				(4) [8]																		



**QUESTION/VRAAG 3**

	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
3.1		(2)
3.2		(2)

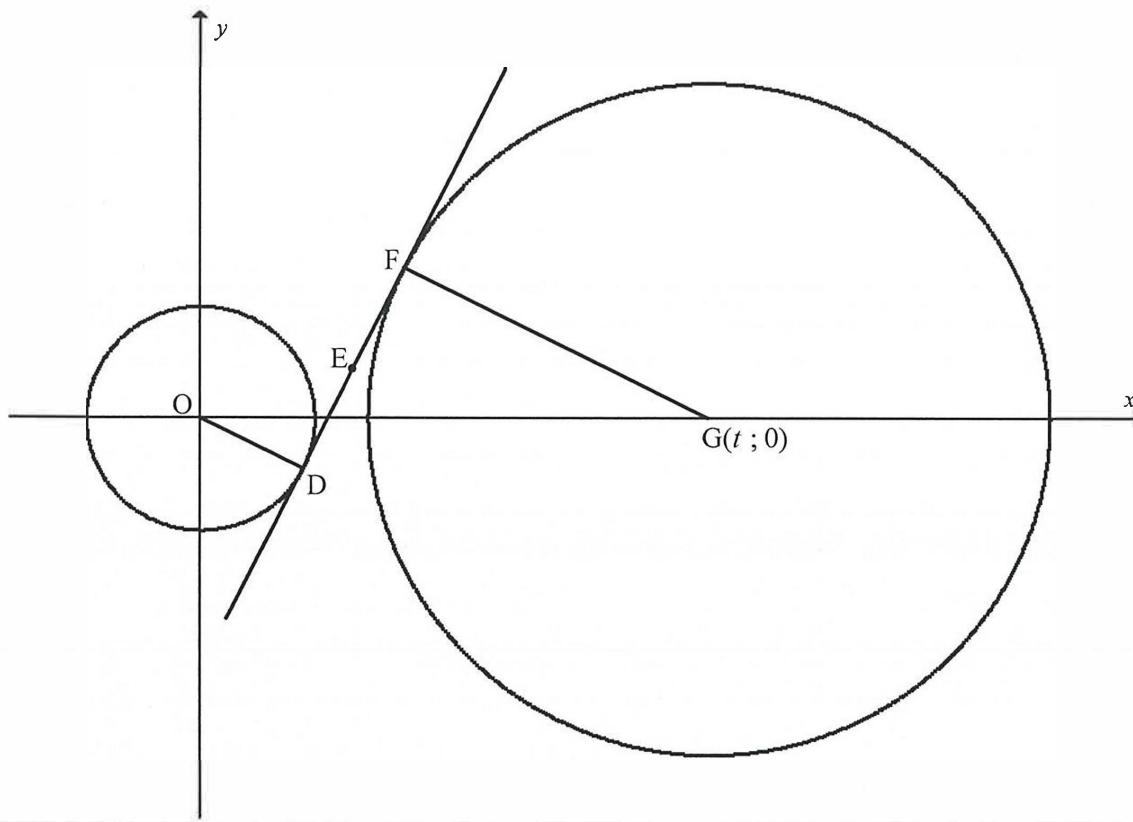


	Solution/ <i>Oplossing</i>	Marks <i>Punte</i>
3.3		(2)
3.4		(3)
3.5		(3)
3.6		(3)



	<b>Solution/<i>Oplossing</i></b>	<b>Marks <i>Punte</i></b>
3.7		(3)
3.8		(2) [20]



**QUESTION/VRAAG 4**

	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
4.1		
4.2		(2)



	Solution/ <i>Oplossing</i>	Marks/ <i>Punte</i>
4.3		(4)
4.4		(3)
4.5		(4)
4.6		(4)
		[20]



## QUESTION/VRAAG 5

	Solution/ <i>Oplossing</i>	Marks/ <i>Punte</i>
5.1.1		(3)
5.1.2		(3)
5.1.3		(3)

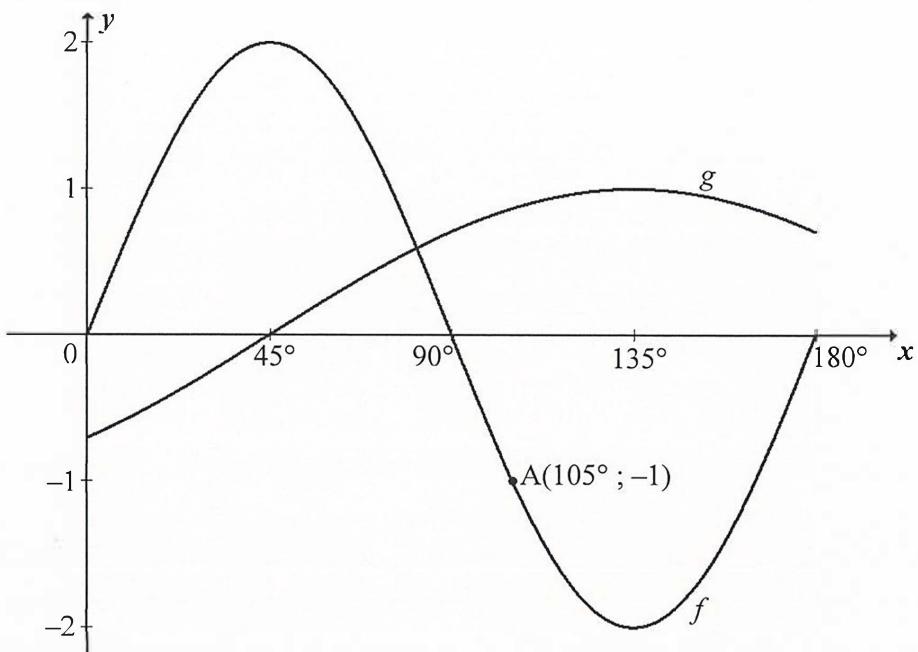


	Solution/ <i>Oplossing</i>	Marks/ <i>Punte</i>
5.2.1		(4)
5.2.2		(2)
5.2.3		(2)
5.3.1		(3)



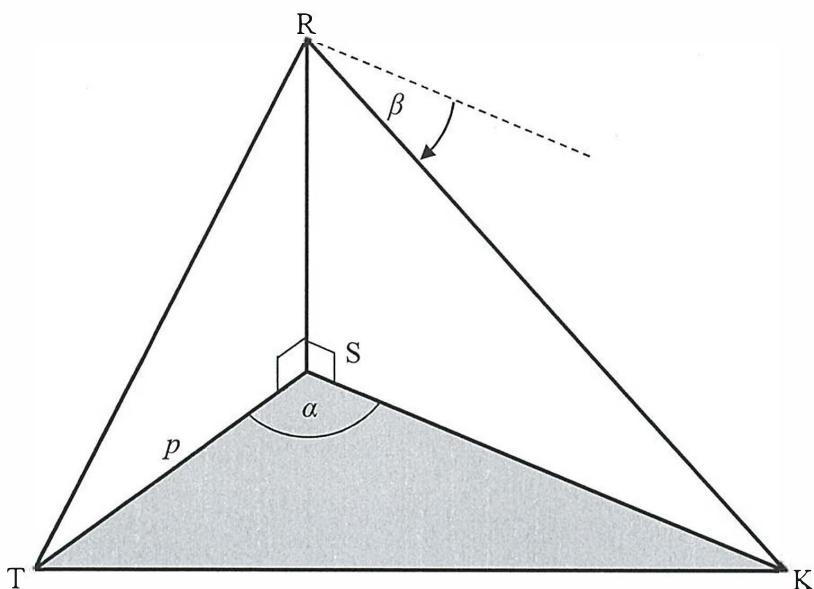
	Solution/ <i>Oplossing</i>	Marks/ <i>Punte</i>
5.3.2		(5)
5.4		(6) [31]



**QUESTION/VRAAG 6**

	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
6.1		(1)
6.2		(2)
6.3.1		(2)
6.3.2		(2)
6.4		(3)
6.5		(2)
		[12]



**QUESTION/VRAAG 7**

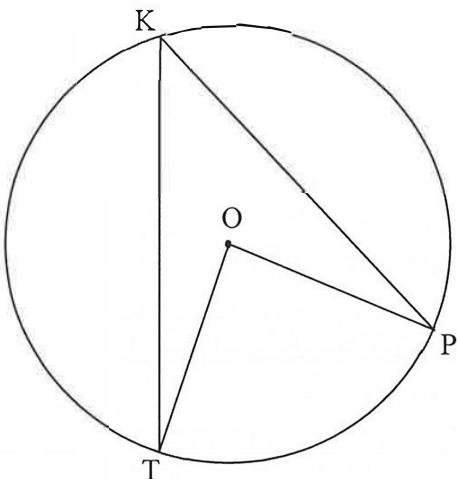
	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
7.1		(2)
7.2		(2)
7.3		(3) [7]



Provide reasons for your statements in QUESTIONS 8, 9 and 10.  
*Verskaf redes vir jou bewerings in VRAAG 8, 9 en 10.*

**QUESTION/VRAAG 8**

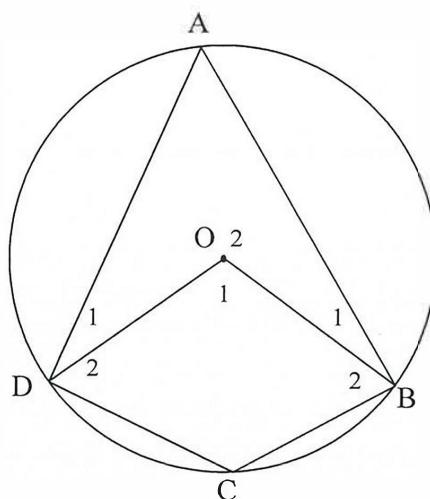
8.1



	Solution/Oplossing	Marks/Punte
		(5)



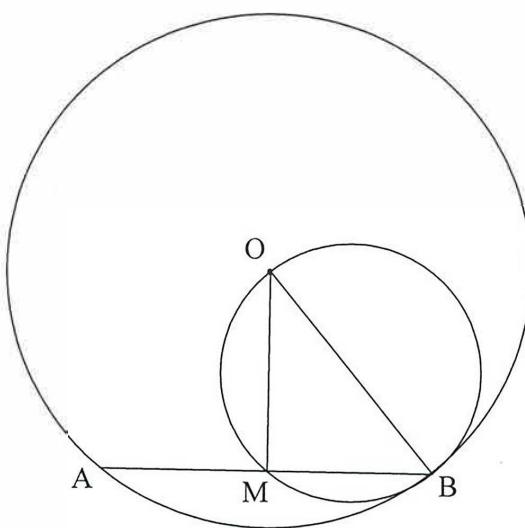
8.2



	Solution/ <i>Oplossing</i>	Marks <i>Punte</i>
		(5)

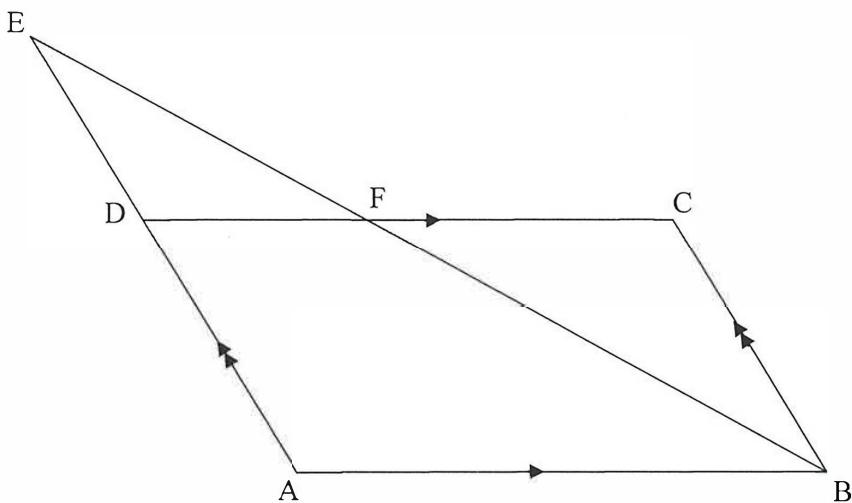


8.3



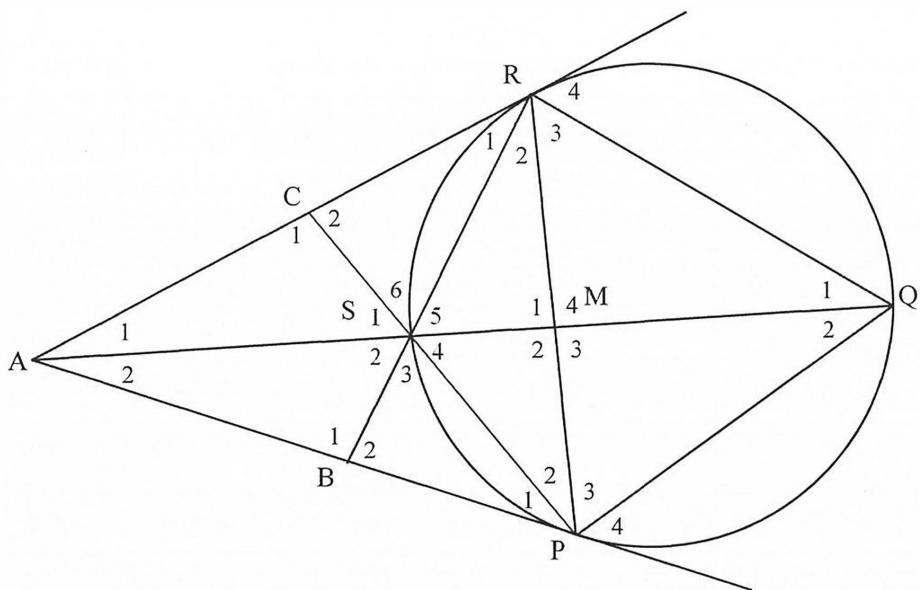
	<b>Solution/Oplossing</b>	<b>Marks Punte</b>
8.3.1		(2)
8.3.2		(4) [16]



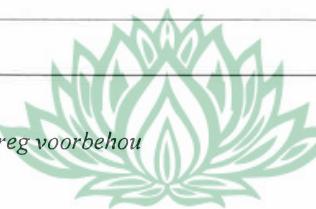
**QUESTION/VRAAG 9**

	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
9.1		(3)
9.2		(3)
9.3		(3)



**QUESTION/VRAAG 10**

	<b>Solution/Oplossing</b>	<b>Marks/Punte</b>
10.1		(5)
10.2		(4)



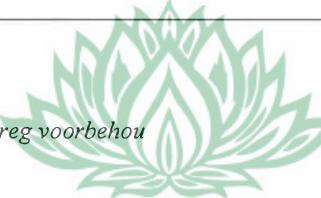
	Solution/ <i>Oplossing</i>	Marks <i>Punte</i>
10.3		(6) [15]



	<b>Additional space/Addisionele ruimte</b>	<b>Marks/Punte</b>



	<b>Additional space/Addisionele ruimte</b>	<b>Marks/Punte</b>



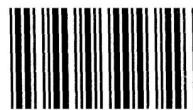
RE-MARK/RE-CHECK HERMERK/HERSIEN			
Question Vraag	Marks Punte	Initials Voorletters	
TOTAL TOTAAL			
HASH TOTAL KAF- TOTAAL			











X10

10612X



WISKUNDE: V2 ANTWOORDEBOEK

November 2023

Vraestel 2

Nasionale Senior Sertifikaat (Grade / Graad 12)

National Senior Certificate

NSC Antwoordeboek

NSC Answer Book