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GAUTENG PROVINCE
 EDUCATION
 REPUBLIC OF SOUTH AFRICA

JUNE EXAMINATION/JUNIE EKSAMEN
GRADE/GRAAD 12
2024

TECHNICAL MATHEMATICS/TEGNIесе WISKUNDE
(PAPER/VRAESTEL 2)
ANSWER BOOK/ANTWOORDBOEK

SURNAME/VAN	
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NAME/NAAM	
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MARKER/NASIENER				MODERATOR'S INITIALS IN RELEVANT BLOCK/ MODERATORPARAAF IN BETROKKE BLOKKIE						RE-MARK/RE-CHECK/ HERNASIEN/HERKONTROLEER			
Question Vraag	Marks Punte		Marker's Code & Initials	Marks Punte	SM	DCM	CM	IM	EM	Question Vraag	Marks Punte	Initials Paraaf	
1										1			
2										2			
3										3			
4										4			
5										5			
6										6			
7										7			
8										8			
9										9			
10										10			
11										11			
			TOTAL TOTAAL							TOTAL TOTAAL			
										HASH TOTAL KAFTOTAAL			

25 pages/bladsye

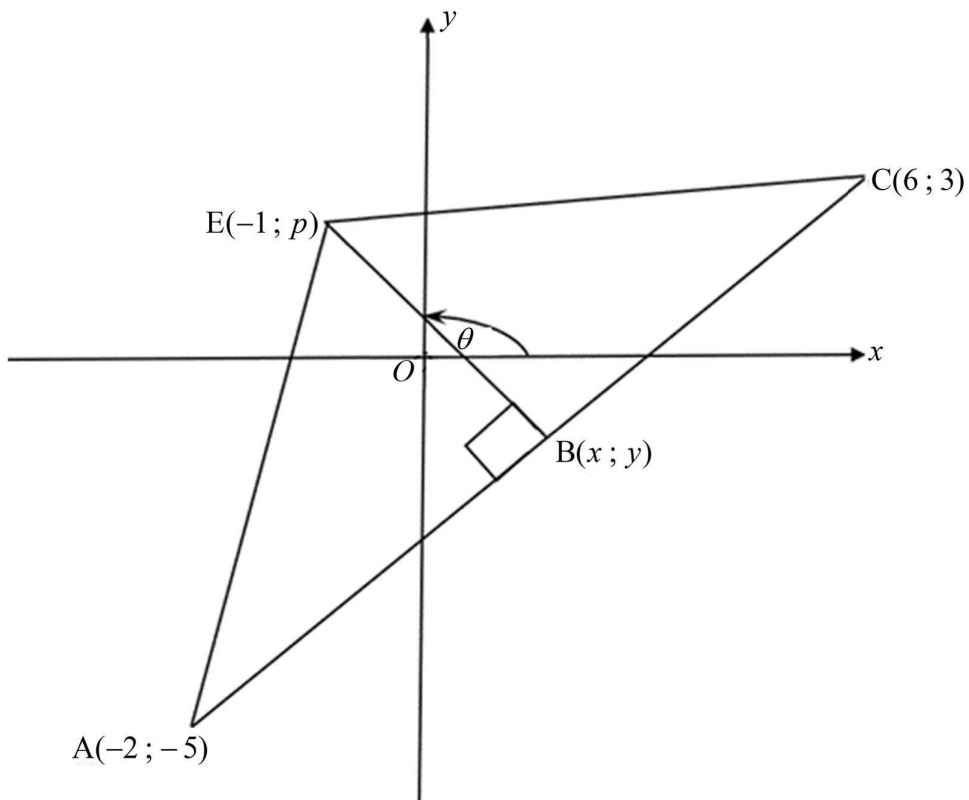


SA EXAM
 PAPERS

Please turn over/Blaai om asseblief

PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY	VOLG ASSEBLIEF HIERDIE INSTRUKSIES NOUKEURIG
1. Your surname and name must be clearly written in the space provided.	1. Skryf jou van en naam duidelik in die ruimtes verskaf.
2. Answer ALL questions in the spaces provided.	2. Beantwoord ALLE vrae in die ruimtes wat verskaf is.
3. No pages may be torn from this answer book.	3. Geen bladsye mag uit hierdie antwoordeboek geskeur word nie.
4. Read the instructions carefully.	4. Lees die instruksies sorgvuldig deur.
5. Answer books must be returned to the invigilator at the end of the examination session.	5. Antwoordeboeke moet aan die einde van die eksamensessie aan die toesighouer terugbesorg word.
6. Answers must be written in black/blue ink as distinctly as possible. Do NOT write in the margins.	6. Skryf die antwoorde so duidelik as moontlik met swart/blou ink. MOENIE in die kantlyne skryf NIE.
7. Indicate the questions you have answered by drawing a circle around the relevant numbers on the front cover of the answer book where marks are to be recorded.	7. Dui die vrae wat jy beantwoord het op die voorblad van die antwoordeboek aan, waar die punte aangebring word, deur 'n kringetjie om die nommers van die vrae wat jy beantwoord het, te trek.
8. Draw a neat line through any work/rough work that must not be marked.	8. Trek 'n netjiese lyn deur enige werk/rofwerk wat nie nagesien moet word nie.
9. In the event that you use the additional space provided:	9. In die geval waar jy die bykomende ruimte wat verskaf is, gebruik:
9.1 Write down the question number.	9.1 Skryf die vraagnommer neer.
9.2 Leave a line and rule off after your answer.	9.2 Laat 'n lyn oop en trek 'n lyn na jou antwoord.

QUESTION/VRAAG 1



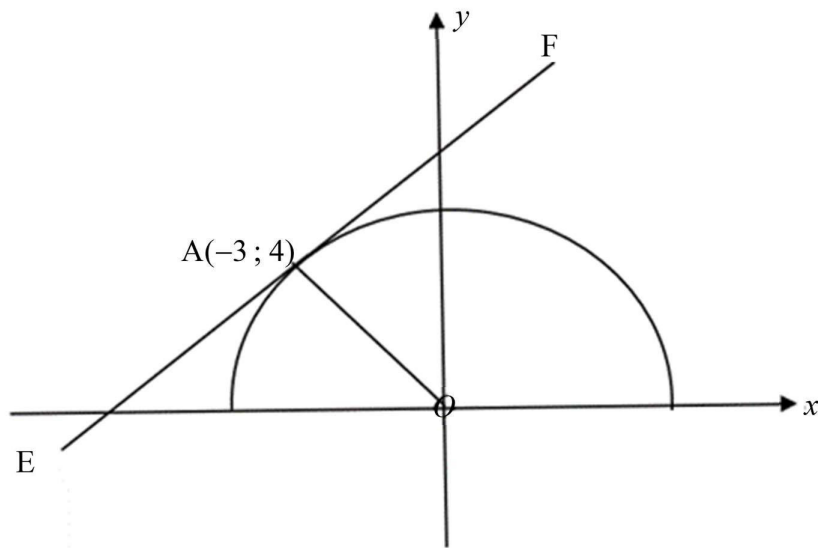
	Solution/Oplissing	Marks/Punte
1.1		(2)
1.2		(2)
1.3		(2)

TECHNICAL MATHEMATICS/TEGNIесе WISKUNDE
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ANSWER BOOK/ANTWOORDBOEK

GR12 0624**4**

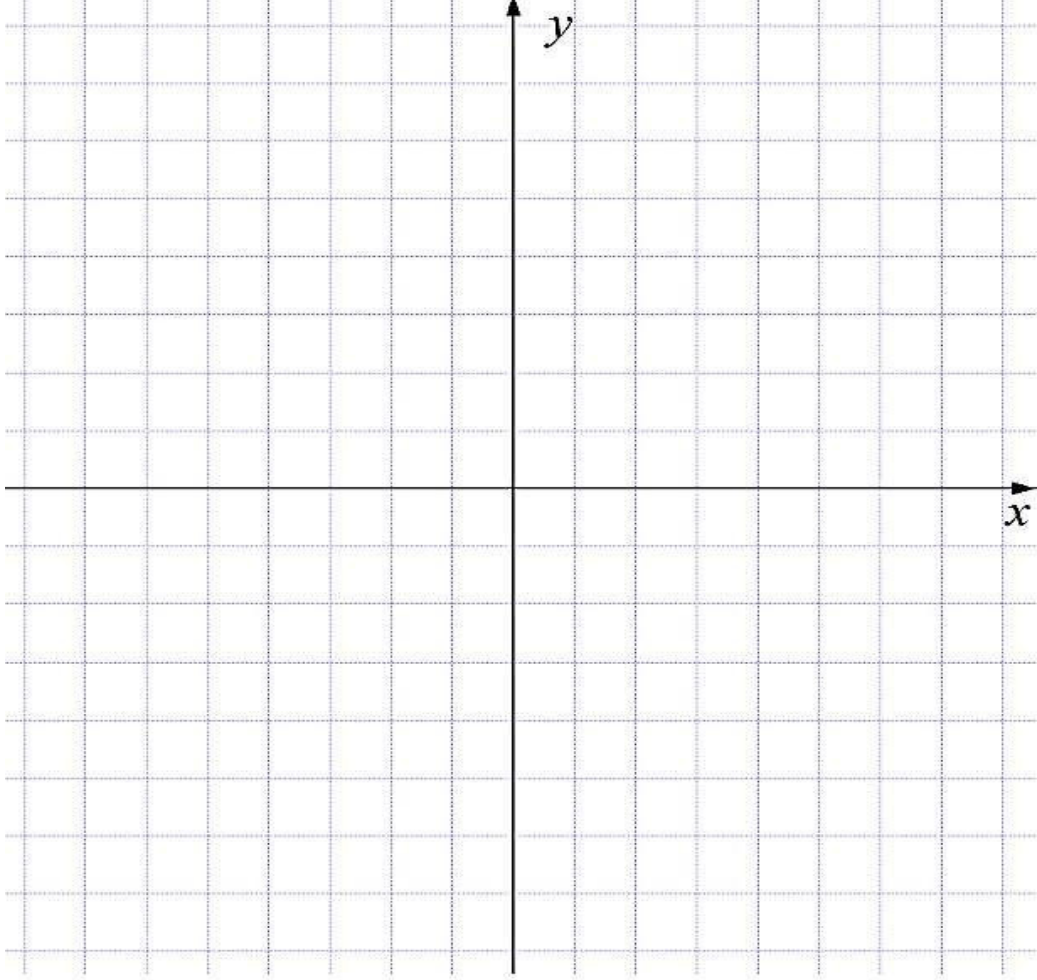
	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
1.4		(3)
1.5		(2)
1.6		(2)
		[13]

QUESTION/VRAAG 2

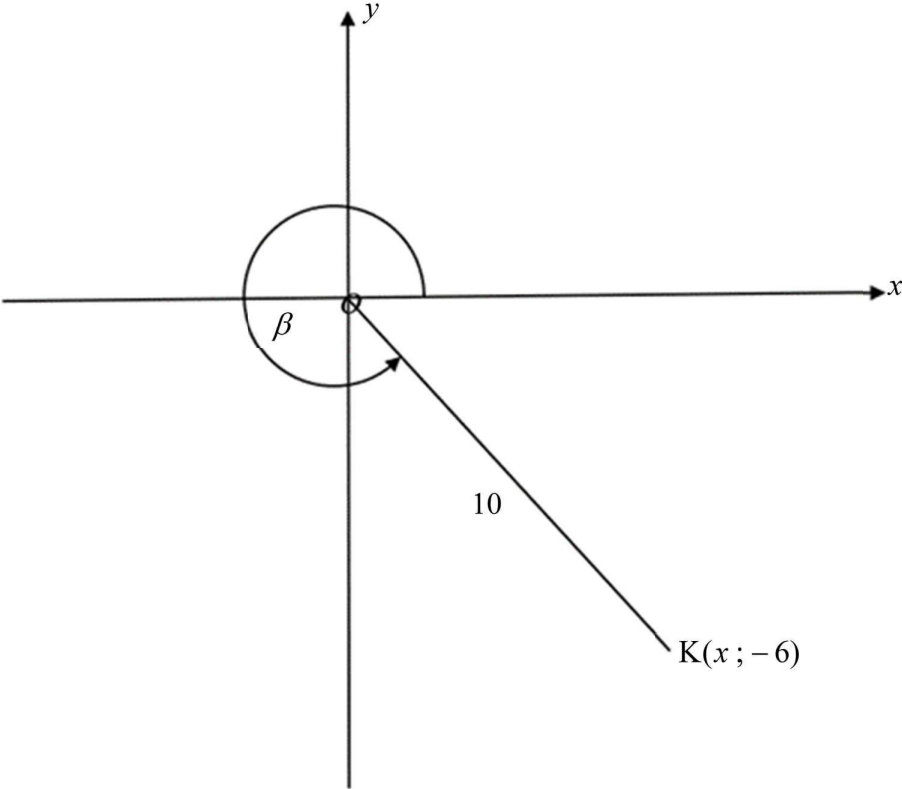


	Solution/Oplossing		Marks Punte
2.1	2.1.1		(3)
	2.1.2		(1)
	2.1.3		(1)
	2.1.4		(3)

TECHNICAL MATHEMATICS/TEGNIJSE WISKUNDE
(PAPER/VRAESTEL 2)
ANSWER BOOK/ANTWOORDBOEK**GR12 0624****6**

	Solution/Oplissing	Marks/ Punte
2.2		(3)
		[11]

QUESTION/VRAAG 3

	Solution/Oplissing	Marks/ Punte
3.1		(2)
3.2		(2)
3.2.1		(2)
3.2.2		(3)



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3.3		(4)
	[11]	



QUESTION/VRAAG 4

		<i>Solution/Oplossing</i>	<i>Marks/Punte</i>
4.1	4.1.1		(1)
	4.1.2		(1)
4.1.3			(6)
4.2			(1)

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GR12 0624	

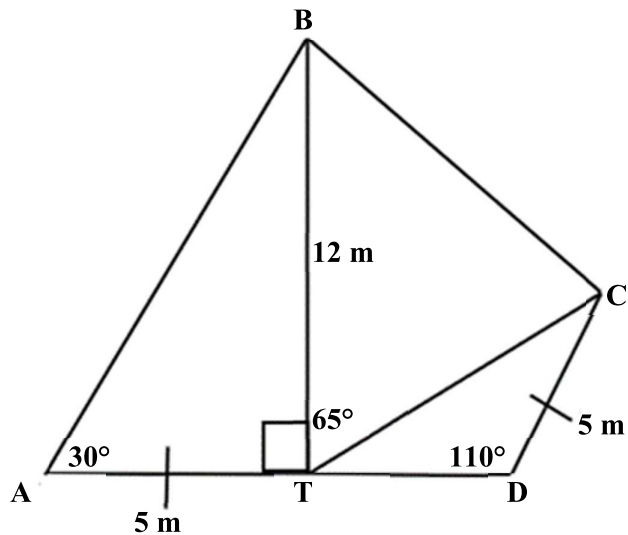
4.3		
	(5)	
	[14]	



QUESTION/VRAAG 5

	Solution/Oplissing	Marks/Punte
5.1	5.1.1	(1)
5.1	5.1.2	(1)
5.2		(1)
5.3		(6)
5.4		(2)
		[11]

QUESTION/VRAAG 6



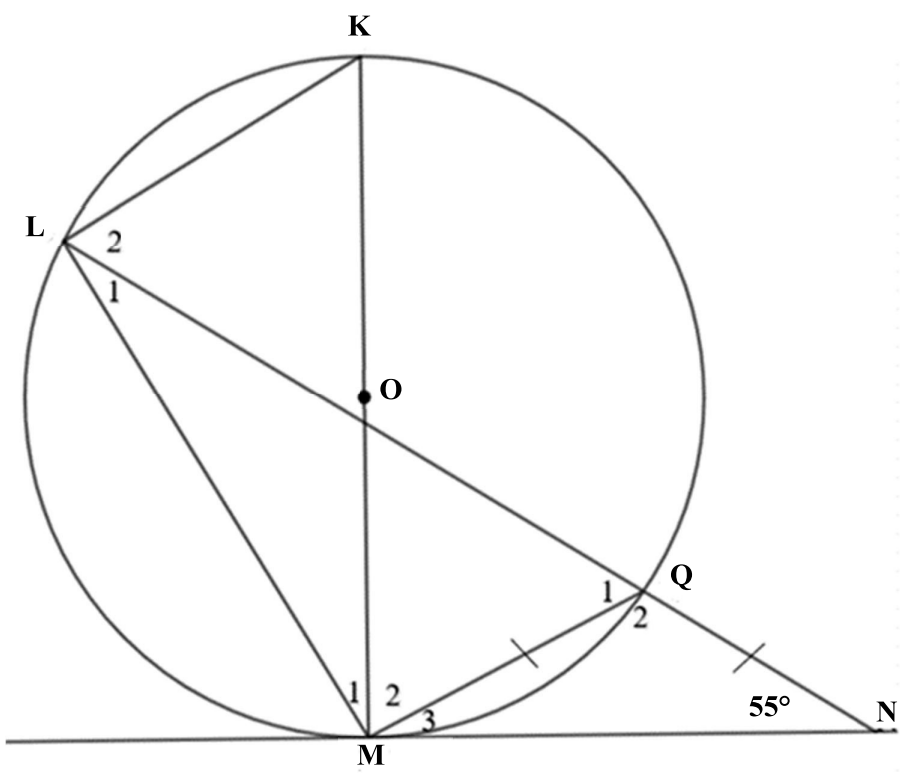
	Solution/Oplissing		Marks/Punte
6.1			(2)
6.2			(1)
6.3	6.3.1		(1)
	6.3.2		(2)

Give reasons for your statements in QUESTIONS 7, 8 and 9.
 Gee redes vir jou bewerings in VRAAG 7, 8 en 9.

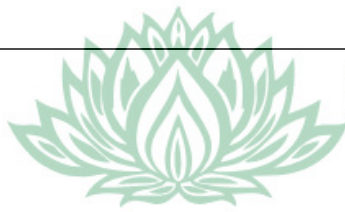
QUESTION/VRAAG 7

	Solution/Oplissing	Marks/Punte
7.1		(1)

7.2



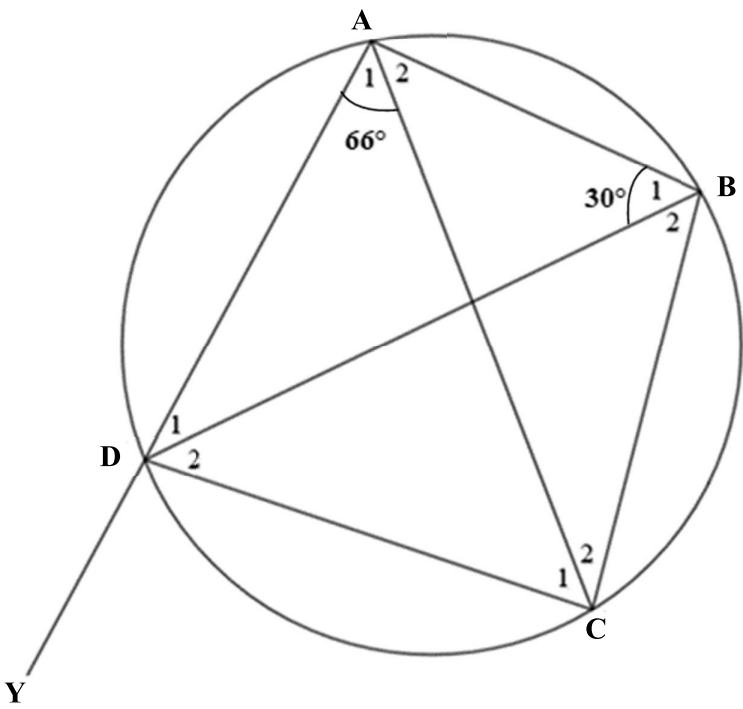
	Solution/Oplissing	Marks/Punte
7.2.1		(1)
7.2.2		(1)
7.2.3		(4)
		[7]



QUESTION/VRAAG 8

	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
8.1		(1)

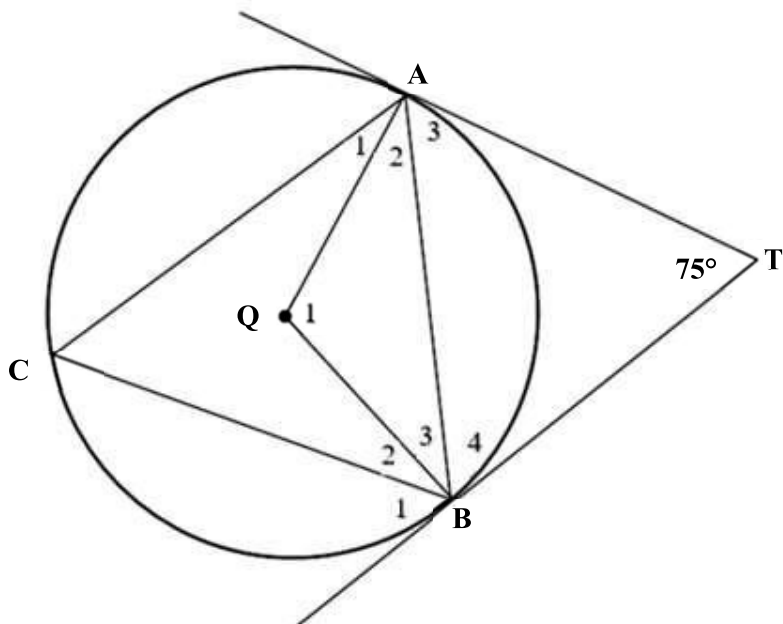
8.2



	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
8.2.1	(a)	
	(b)	
	(c)	
		(2)
		(2)
		(2)



8.3

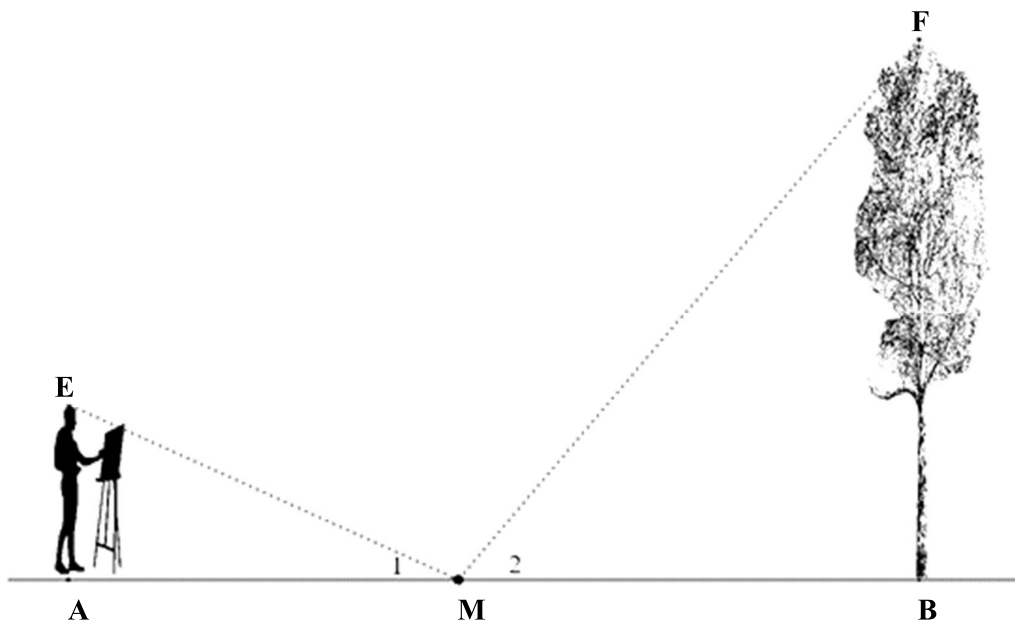


		<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
8.3.1			(4)
8.3.2	(a)		(2)
	(b)		(2)
	(c)		(3)
			[18]

QUESTION/VRAAG 9

	Solution/Oplissing	Marks/Punte
9.1		(1)

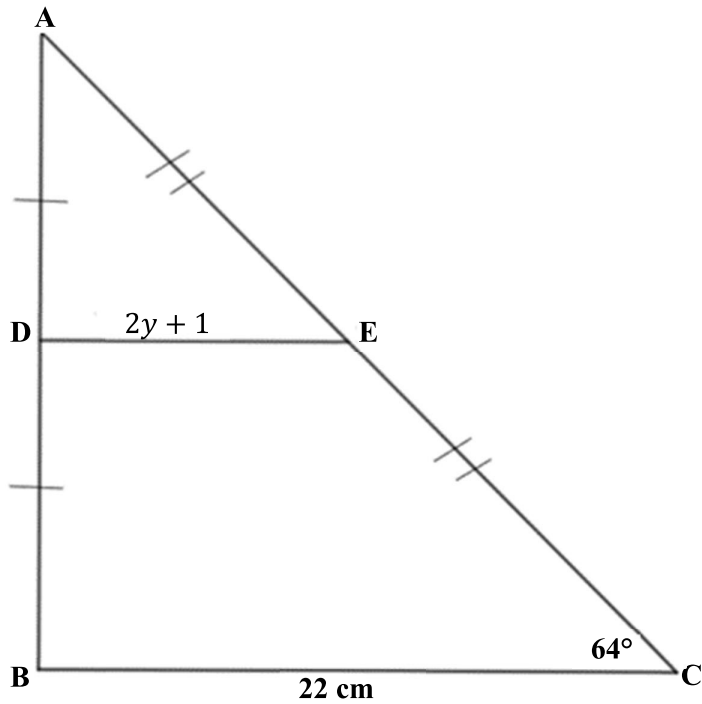
9.2



	Solution/Oplissing	Marks/Punte
9.2.1		(3)
9.2.2		(4)

	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
9.3		(1)

9.4



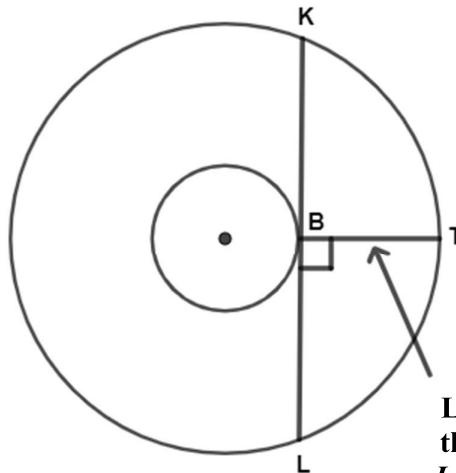
	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
9.4.1		(2)
9.4.2		(1)
9.4.3		(2)
[14]		

QUESTION/VRAAG 10

10.1



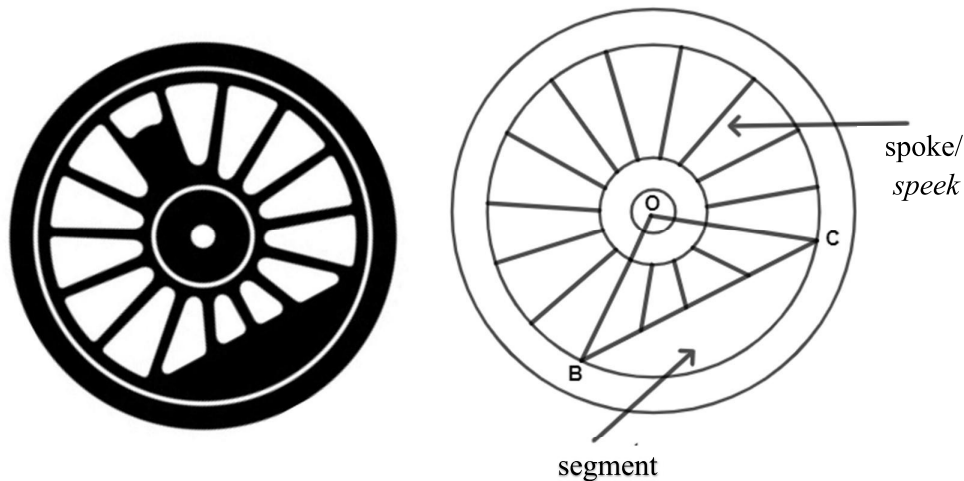
Blade/Lem



**Length of
the blade/
Lengte van
die lem**

	Solution/Oplissing	Marks/Punte
10.1.1		(1)
10.1.2		(3)
10.1.3		(4)

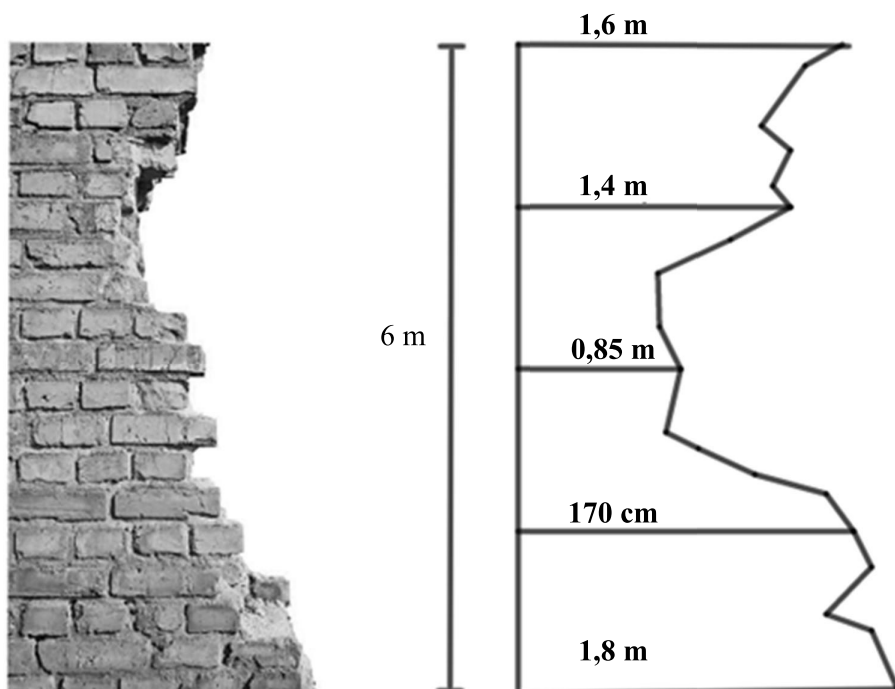
10.2



	<i>Solution/Oplissing</i>	Marks/ Punte
10.2.1		(1)
10.2.2		(3)
10.2.3		(5)
		[17]

QUESTION/VRAAG 11

11.1

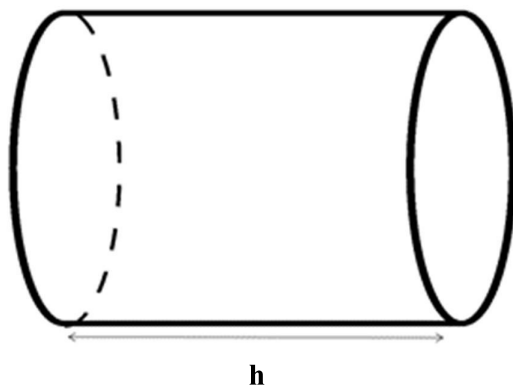
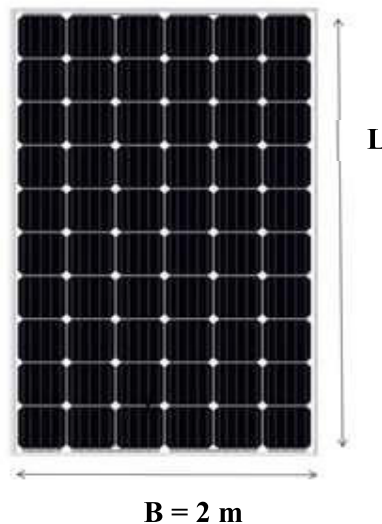


	Solution/Oplissing	Marks/Punte
11.1.1		(1)
11.1.2		(4)
11.1.3		(3)

11.2



[Source/Bron: <https://thumbor.forbes.com/thumbor/fit-in/900x510/https://www.forbes.com/home-improvement/wp-content/uploads/2022/05/featured-image-solar-water-heater.jpeg>]

FIGURE/FIGUUR A

FIGURE/FIGUUR B


Total surface area of a closed right cylinder = $2\pi r^2 + 2\pi rh$

Volume of a right cylinder = $\pi r^2 h$

Totalle buite-oppervlakte van 'n reëlmatige silinder = $2\pi r^2 + 2\pi rh$

Volume van 'n regte silinder = $\pi r^2 h$

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	<i>Solution/Oplissing</i>	<i>Marks/Punte</i>
11.2.1		(4)
11.2.2		(6)
[18]		

TOTAL/TOTAAL: 150



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Additional space/ <i>Bykomende ruimte</i>	Marks/ <i>Punte</i>









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