



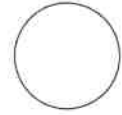
basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Candidate Barcode Label/Stafieskodeplakker

SC/NSC Answer Book
SS/NSS-Antwoordeboek

SENIOR CERTIFICATE EXAMINATIONS/NATIONAL SENIOR CERTIFICATE EXAMINATIONS
SENIOR SERTIFIKAAAT-EKSAMEN/NASIONALE SENIORSERTIFIKAAAT-EKSAMEN (Grade 12/Graad 12)



Sequence no on mark sheet
Volgnommer op puntestaat

CENTRE NUMBER
SENTRUMNOMMER

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

EXAMINATION NUMBER
EKSAMENNOMMER

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DATE
DATUM

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BOOK NUMBER BOEKNOMMER	OF VAN	BOOKS BOEKE
---------------------------	-----------	----------------

SUBJECT CODE
VAKKODE

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PAPER NUMBER
VRAESTELNOMMER

2

SUBJECT NAME
VAKNAAM

TECHNICAL MATHEMATICS/TEGNIESE WISKUNDE

This answer book consists of 25 pages./Hierdie antwoordeboek bestaan uit 25 bladsye.

MARKER/NASIENER			MODERATOR'S INITIALS IN RELEVANT BLOCK/ MODERATORPARAAF IN BETROKKE BLOKKIE					
Question Vraag	Marks Punte	Marker's Code & Initials	Marks Punte	SM	DCM	CM	IM	EM
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

RE-MARK/RE-CHECK/ HERNASIEN/HERKONTROLEER		
Question Vraag	Marks Punte	Initials Paraaf
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

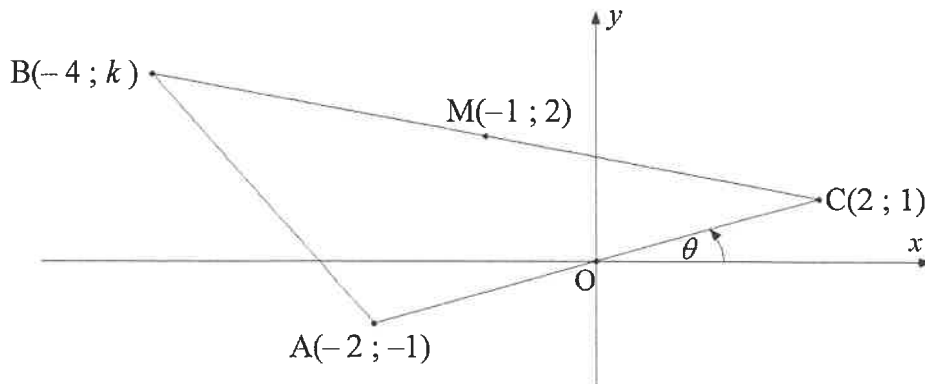
TOTAL TOTAAL																			
HASH TOTAL KAFTOTAAL																			

CONTROLLED AND CERTIFIED CORRECT
SURNAME AND INITIALS OF EA)

PLEASE READ INSTRUCTIONS ON THE NEXT PAGE
LEES ASSEBLIEF INSTRUKSIES OP VOLGENDE BLADSY

PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY	VOLG ASSEBLIEF HIERDIE INSTRUKSIES NOUKEURIG
<p>1. Your examination number and centre number must be clearly written in the space provided and attach your examination number sticker in the space provided.</p> <p>2. Remember that your own name (or the name of your school) may not appear anywhere on or in this answer book.</p> <p>3. Answer ALL questions in the spaces provided.</p> <p>4. No pages may be torn from this answer book.</p> <p>5. Read the instructions printed on your timetable carefully as well as any other instructions which may be given in each examination paper.</p> <p>6. Candidates may not retain an answer book or remove it from the examination room. Answer books must be returned to the Invigilator at the end of the examination session.</p> <p>7. Answers must be written in black/blue ink as distinctly as possible. Do not write in the margins.</p> <p>8. 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.</p> <p>9. Rule off through any work/rough work that must not be marked.</p> <p>10. In the event that you use the additional space provided: 10.1 Write down the number of the question 10.2 Leave a line and rule off after your answer.</p>	<p>1. Skryf jou eksamennommer en sentrumnummer duidelik in die ruimtes soos verskaf en plak jou eksamennommeretiket in die ruimte soos verskaf.</p> <p>2. Onthou dat jou eie naam (of die naam van jou skool) nie op of in hierdie antwoordeboek mag voorkom nie.</p> <p>3. Beantwoord ALLE vrae in die ruimtes wat verskaf is.</p> <p>4. Geen bladsye mag uit hierdie antwoordeboek geskeur word nie.</p> <p>5. Lees die instruksies wat op jou eksamenrooster gedruk is sorgvuldig deur, asook enige ander instruksies wat in elke eksamenvraestel gegee word.</p> <p>6. Geen antwoordeboek mag deur die kandidaat behou of uit die eksamenlokaal verwyder word nie. Antwoordeboeke moet aan die Toesighouer terugbesorg word aan die einde van die eksamensessie.</p> <p>7. Skryf die antwoorde so duidelik moontlik met swart/blou ink. Moenie in die kantlyn skryf nie.</p> <p>8. Dui die vrae wat jy beantwoord het aan op die voorblad van die antwoordeboek waar die punte aangebring word, deur 'n kringetjie te trek om die nommers van die vrae wat jy beantwoord het.</p> <p>9. Trek 'n netjiese lyn deur enige werk/rofwerk wat nie nagesien moet word nie.</p> <p>10. In geval jy die bykomende ruimte wat verskaf word, gebruik: 10.1 Skryf die nommer van die vraag neer. 10.2 Laat 'n lyn oop en trek 'n lyn na jou antwoord.</p>

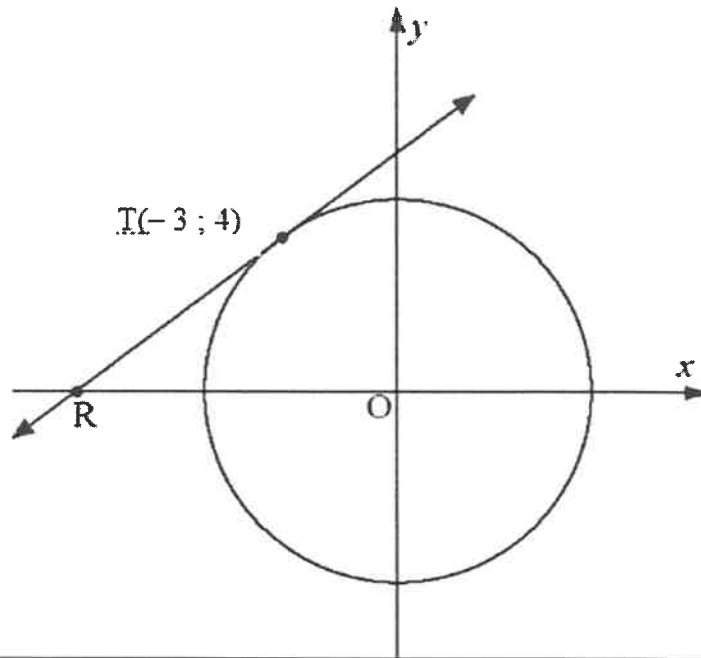
QUESTION/VRAAG 1



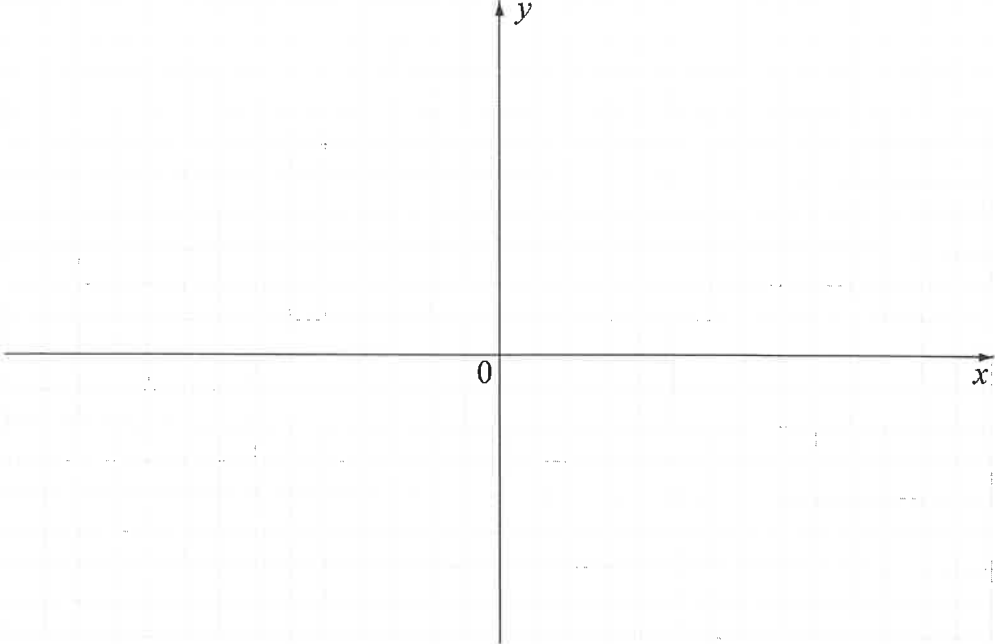
	Solution/Oplissing	Marks Punte
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)

	Solution/Oplissing	Marks Punte
1.1.4		(3)
1.2.1		(3)
1.2.2		(3)
	[15]	

QUESTION/VRAAG 2



	Solution/Oplissing	Marks Punte
2.1.1		(2)
2.1.2		(5)

	Solution/Oplossing	Marks Punte
2.2.1		(1)
2.2.2		(3)
		[11]

QUESTION/VRAAG 3

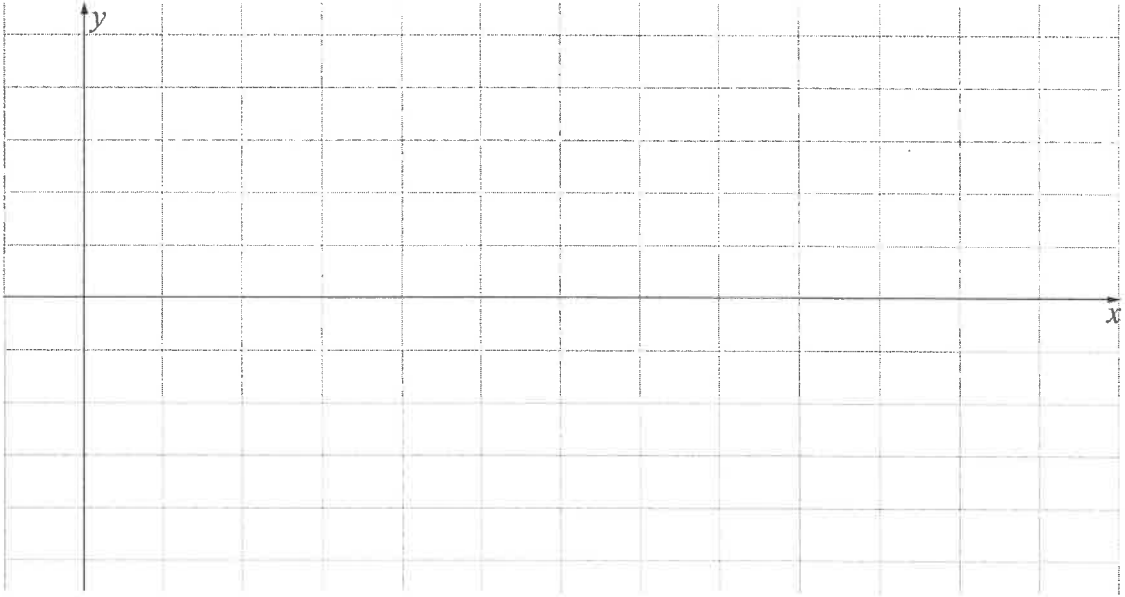
	Solution/Oplissing	Marks Punte
3.1		(2)
3.2.1		(2)
3.2.2		(6)

	Solution/Oplissing	Marks Punte
3.3.1		
3.3.2		
		(5) [18]

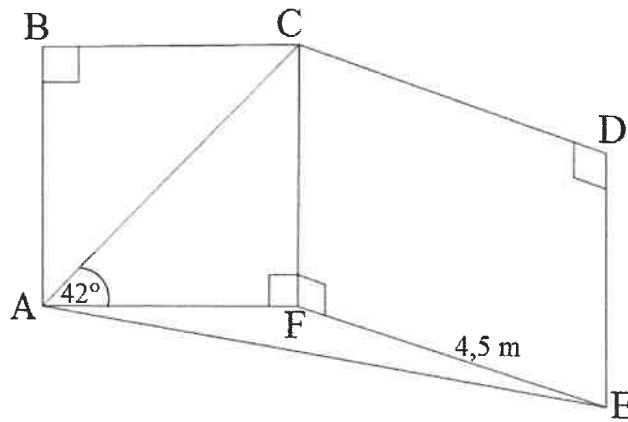
QUESTION/VRAAG 4

	Solution/Oplissing	Marks Punte
4.1.1		
		(2)
4.1.2		
		(4)
4.2		
		(5)
		[11]

QUESTION/VRAAG 5

	Solution/Oplissing	Marks Punte
5.1		
5.2.1		(6)
5.2.2		(1)
5.2.3		(1)
5.3		(2)
		[11]

QUESTION/VRAAG 6

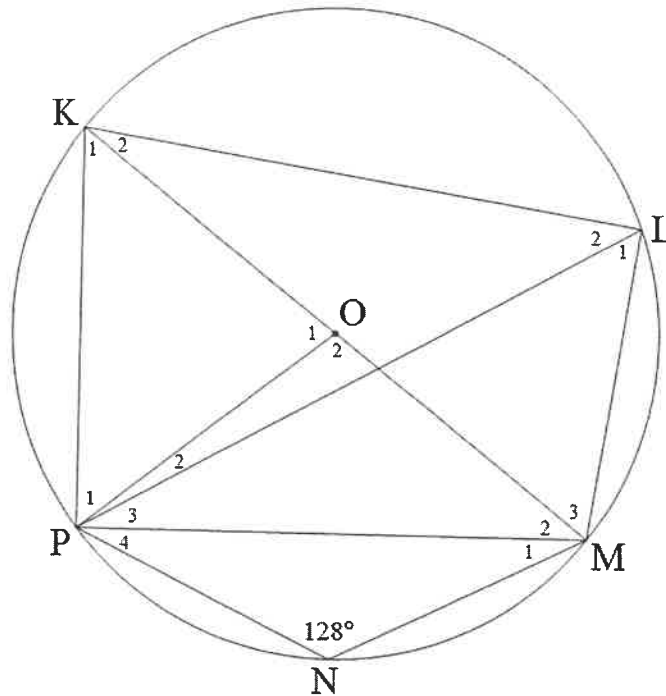


	Solution/Oplissing	Marks Punte
6.1		(1)
6.2.1		(2)
6.2.2		(4)
6.2.3		(3)
		[10]

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

QUESTION/VRAAG 7

	Solution/Oplissing	Marks Punte
7.1		(1)



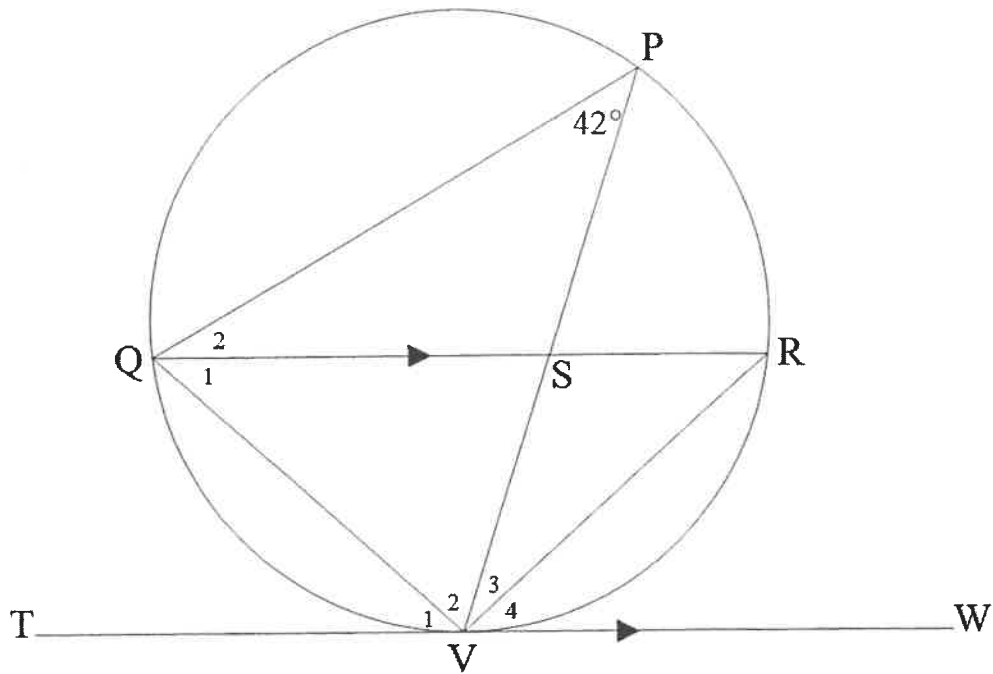
	Solution/Oplissing	Marks Punte
7.2.1		(2)
7.2.2		(5)

	Solution/Oplissing	Marks Punte
7.2.3		
		(2)
		[10]

QUESTION/VRAAG 8

	Solution/Oplissing	Marks Punte
8.1		(1)

8.2



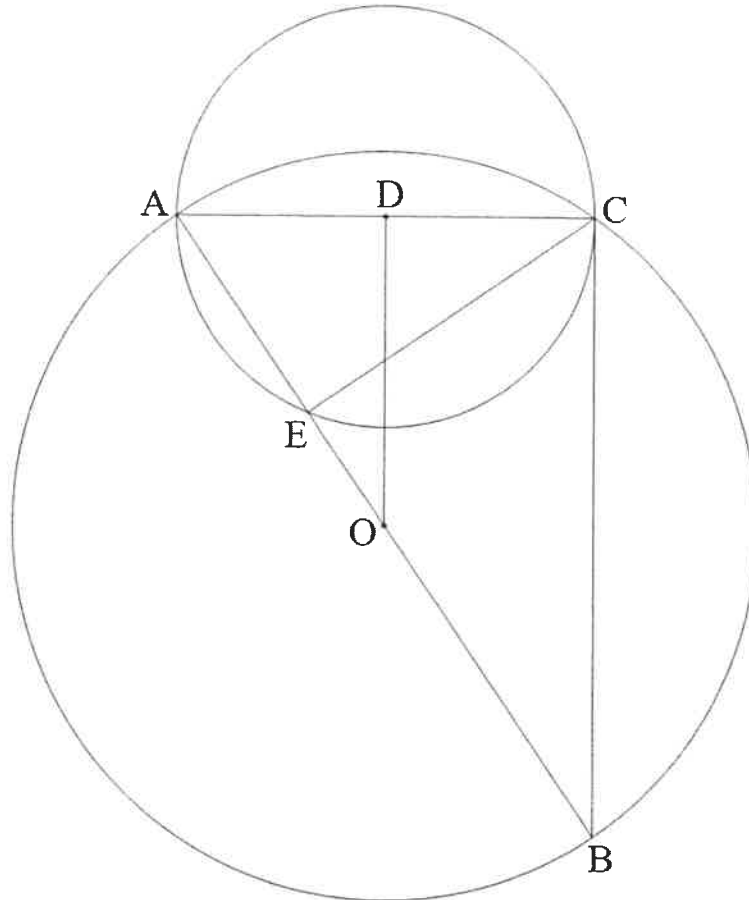
	Solution/Oplissing	Marks Punte
8.2.1		(6)

	Solution/Oplissing	Marks Punte
8.2.2		
8.2.3		(2)
		(3)
		[12]

QUESTION/VRAAG 9

	Solution/Oplissing	Marks Punte
9.1		(1)

9.2

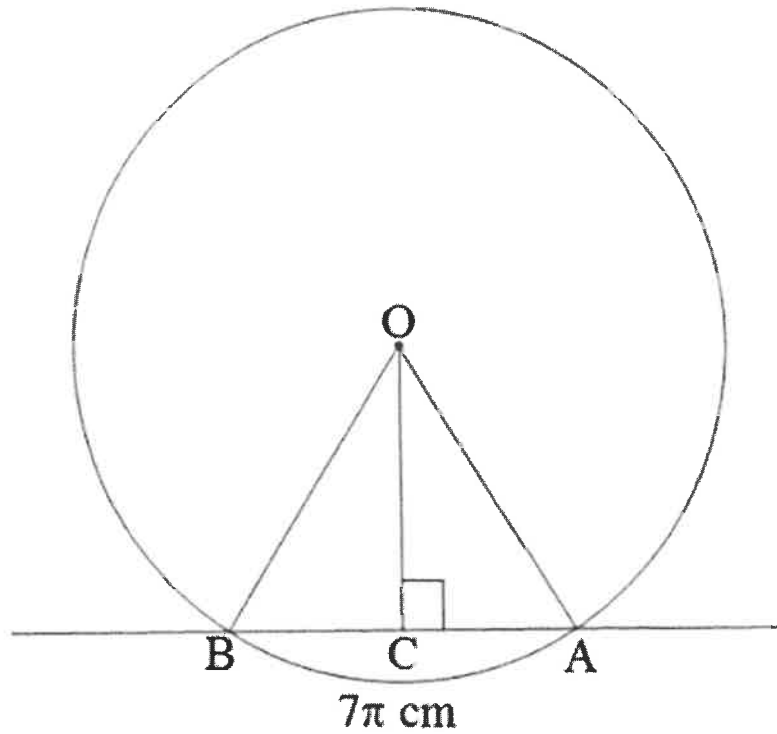


	Solution/Oplissing	Marks Punte
9.2.1		(2)
9.2.2		(1)

	Solution/Oplissing	Marks Punte
9.2.3		
	(4)	
9.2.4		
	(3)	
9.2.5		
	(1)	
9.2.6		
	(3)	
	[15]	

QUESTION/VRAAG 10

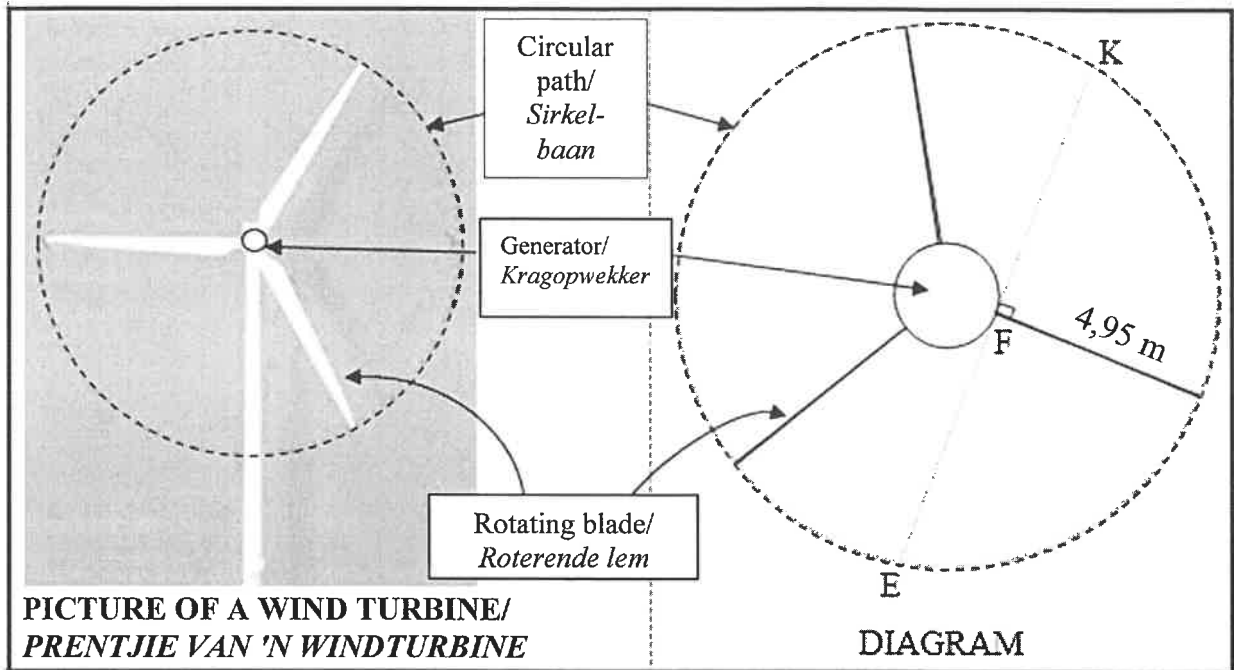
10.1



	Solution/Oplissing	Marks Punte
10.1.1		(1)
10.1.2		(2)

	Solution/Oplissing	Marks Punte
10.1.3		(3)
10.1.4		(3)

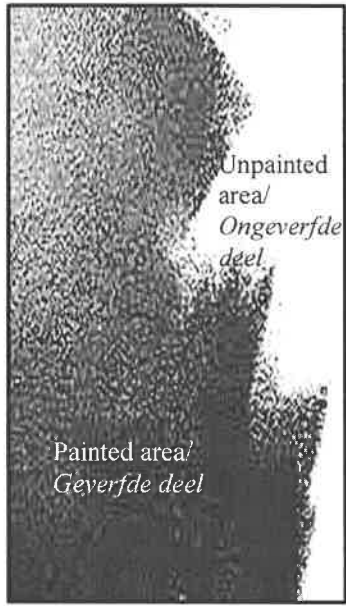
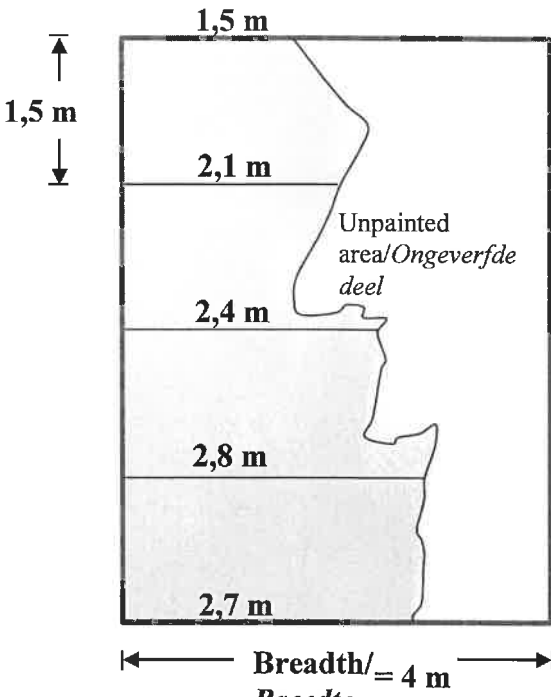
10.2



	Solution/Oplissing	Marks Punte
10.2.1		(3)
10.2.2		(4)
	[16]	

QUESTION/VRAAG 11

11.1

 <p style="text-align: right; margin-right: 10px;">Unpainted area/ <i>Ongeverfde deel</i></p> <p style="text-align: left; margin-left: 10px;">Painted area/ <i>Geverfde deel</i></p> <p style="text-align: center; margin-top: 10px;">PICTURE OF THE WALL/ PRENTJIE VAN DIE MUUR</p>	 <p style="text-align: center; margin-top: 10px;">Breadth/= 4 m Breedte</p> <p style="text-align: center; margin-top: 10px;">DIAGRAM</p>
--	---

	Solution/Oplissing	Marks Punte
11.1.1		(1)
11.1.2		(4)
11.1.3		(6)

11.2

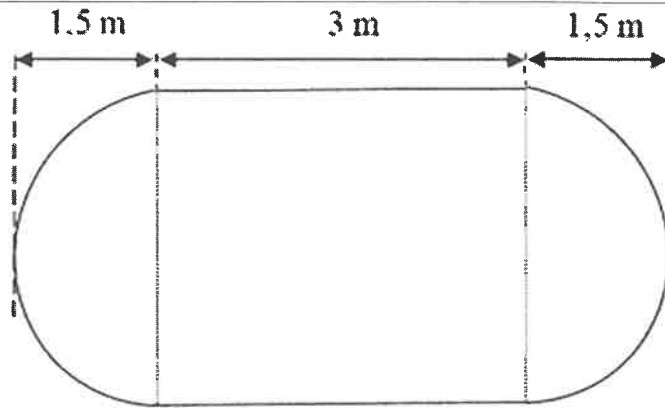


DIAGRAM: Side view of the tank/ Syaansig van die tenk

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

Area of a rectangle = length \times breadth

Volume of a right cylinder = $(\pi r^2) \times$ height

Surface area of a sphere = $4\pi r^2$

Volume of a sphere = $\frac{4}{3}\pi r^3$

Total oppervlakte van 'n regte silinder = $2\pi r^2 + 2\pi r h$

Oppervlakte van reghoek = lengte \times breedte

Volume van 'n regte silinder = $(\pi r^2) \times$ hoogte

Buite - oppervlakte van 'n sfeer = $4\pi r^2$

Volume van 'n sfeer = $\frac{4}{3}\pi r^3$

	Solution/Oplissing	Marks Punte
11.2.1		

(5)

	Solution/<i>Oplossing</i>	Marks <i>Punte</i>
11.2.2		
		(5)
		[21]

	Additional space/Bykomende ruimte	Marks Punte

TOTAL/TOTAAL: 150