



LEARNER'S NAME/  
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GRADE/GRAAD 11

**NATIONAL SENIOR CERTIFICATE/  
NASIONALE SENIOR SERTIFIKAAT**

**GRADE/GRAAD 11**

**NOVEMBER 2020**

**TECHNICAL MATHEMATICS P2/TEGNIESE WISKUNDE V2  
SPECIAL ANSWER BOOK/SPEZIALE ANTWOORDEBOEK  
(EXEMPLAR/EKSEMPLAAR)**

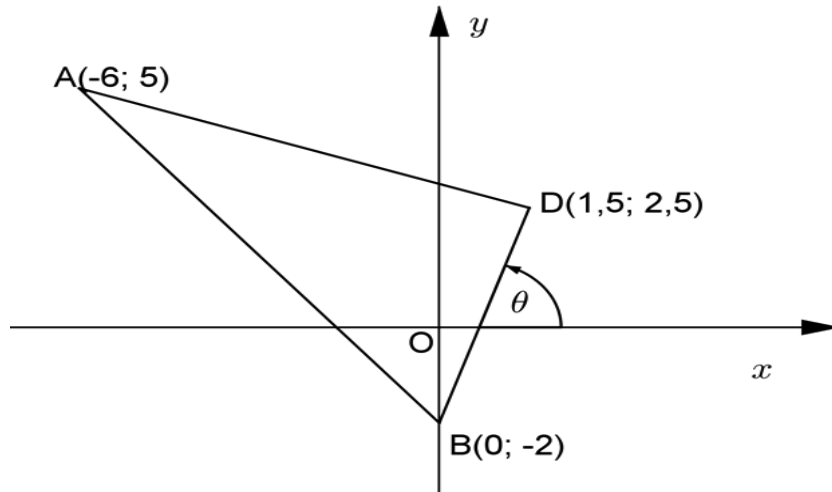
QUESTION/VRAAG	MARKS/PUNTE	HOD/HVD (Level 1 mod./Vlak 1 mod.)			DISTRICT/DISTRIK (Level 2 mod./Vlak 2 mod.)			PROVINCIAL/PROVINSIAAL (Level 3 mod./Vlak 3 mod.)			
1											
2											
3											
4											
5											
6											
7											
8											
TOTAL/TOTAAL											



This special answer book consists of 23 pages./  
*Hierdie spesiale antwoordeboek bestaan uit 23 bladsye.*

FOLLOW THESE INSTRUCTIONS CAREFULLY	VOLG HIERDIE INSTRUKSIES NOUKEURIG
1. Answer ALL questions in the spaces provided.	1. Beantwoord ALLE vrae in die ruimtes wat voorsien is.
2. No pages may be torn from this answer book.	2. Geen bladsye mag uit hierdie antwoordeboek geskeur word nie.
3. Answers must be written in black/blue ink as distinctly as possible. Do not write in the margins.	3. Skryf die antwoorde so duidelik moontlik met swart/blou ink. Moenie in die kantlyn skryf nie.
4. 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.	4. Dui die vrae wat jy beantwoord het aan op die voorblad van die antwoordeboek waar die punte aangebring is, deur 'n kringetjie te trek om die nommers van die vrae wat jy beantwoord het.
5. Draw a line through any work/rough work that must not be marked.	5. Trek 'n netjiese lyn deur enige werk/rofwerk wat nie nagesien moet word nie.
6. In the event that you use the additional space provided:	6. Ingeval jy die bykomende ruimte wat voorsien word, gebruik:
6.1 Write down the number of the question	6.1 Skryf die nommer van die vraag neer.
6.2 Leave a line and rule off after your answer.	6.2 Laat 'n lyn oop en trek 'n lyn na jou antwoord.

QUESTION/VRAAG 1



	<b>Solution/Oplissing</b>	<b>Marks Punte</b>
1.1		(3)
1.2		(3)
1.3		(4)

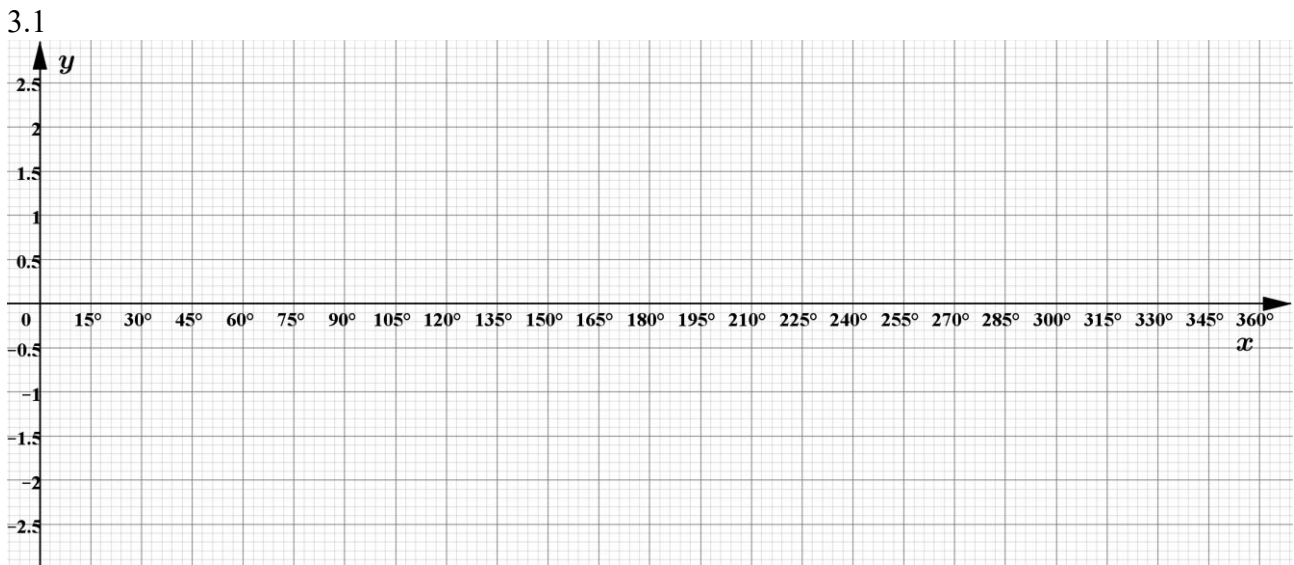
	<i>Solution/Oplissing</i>	<b>Marks Punte</b>
1.4		(2)
1.5		(3)
1.6		(2)
1.7		(2)
1.8		(1)





2.3	$\frac{\sin(360^\circ - x)\sec(180^\circ + x)}{\tan(180^\circ - x)\operatorname{cosec}(360^\circ + x)}$	(8)
2.4		(5)
2.5	$-\frac{2}{3}\sin x + 0,524 = 0$	(4)
		<b>[26]</b>

## QUESTION/VRAAG 3

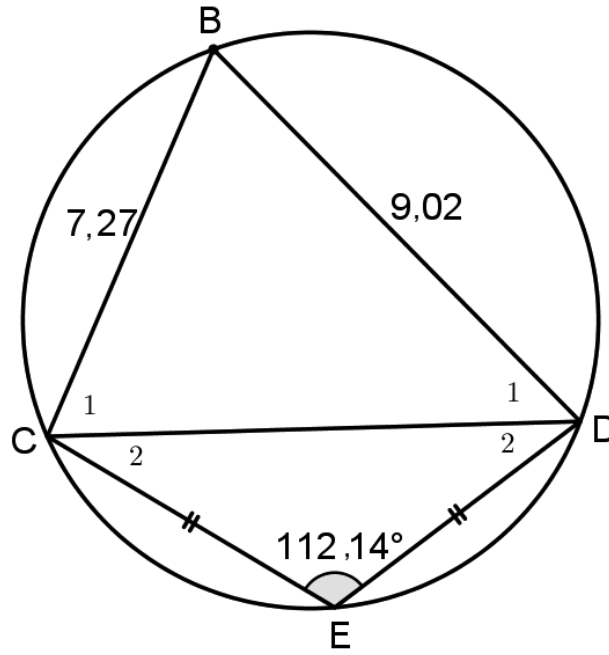


(6)

	<i>Solution/Oplissing</i>	<b>Marks Punte</b>
3.2		(2)
3.3		(1)
3.4.1		(1)
3.4.2		(1)
3.4.3		(2)
3.4.4		(2)
		<b>[15]</b>



QUESTION/VRAAG 4

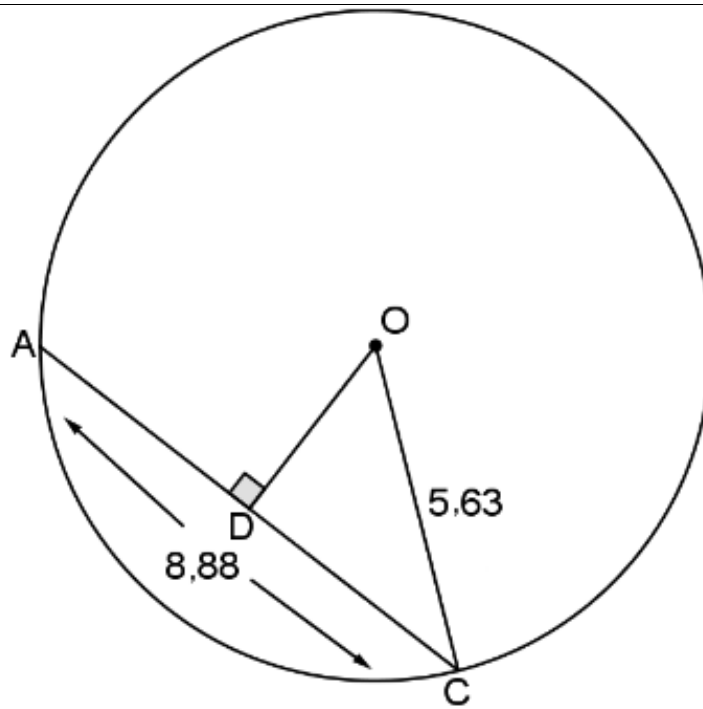


	Solution/Oplissing	Marks Punte
4.1		(4)
4.2		(4)



QUESTION/VRAAG 5

	Solution/Oplissing	Marks Punte
5.1		(1)

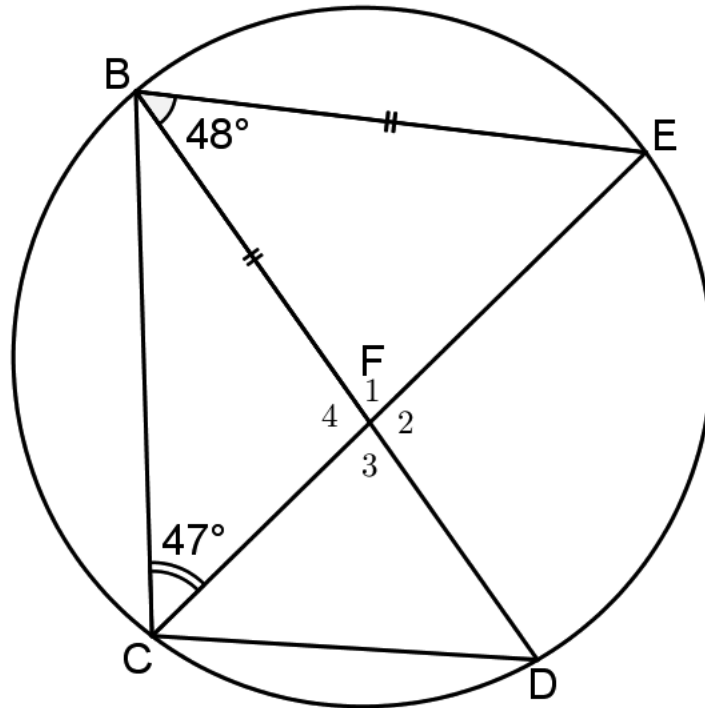


	Solution/Oplissing	Marks Punte
5.2		(5)



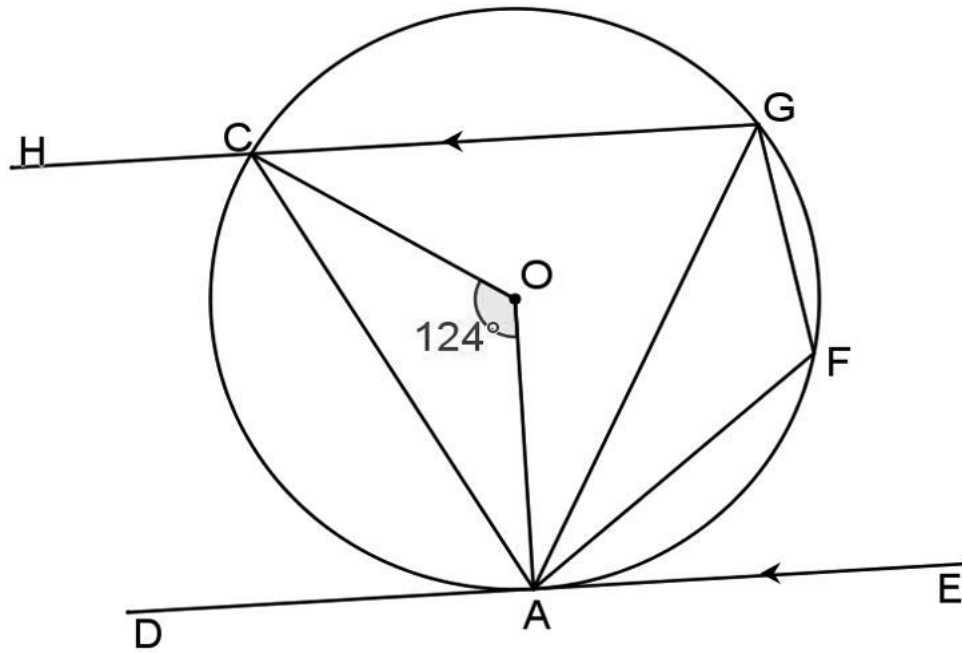
QUESTION/VRAAG 6

	Solution/Oplissing	Marks Punte
6.1		(1)



	Solution/Oplissing	Marks Punte
6.2.1		(4)
6.2.2		(2)

	<i>Solution/Oplissing</i>	<b>Marks Punte</b>
6.2.3		(2)




	<i>Solution/Oplissing</i>	<b>Marks Punte</b>
6.3.1		(2)
6.3.2		(2)
6.3.3		(2)

6.3.4		(3)
6.3.5		(4)
		[22]

**QUESTION/VRAAG 7**

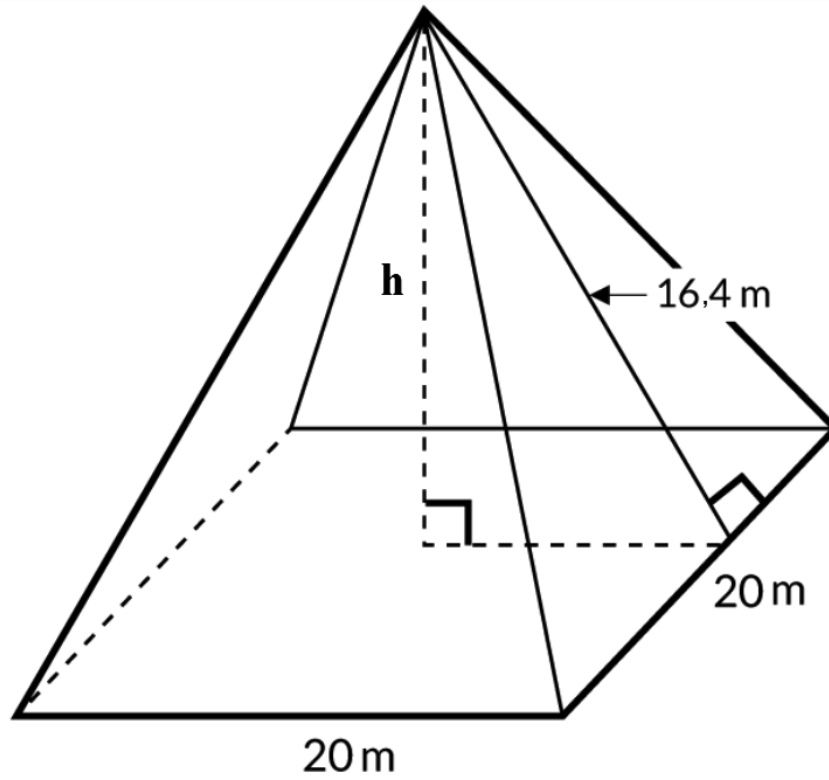
Area = $2lh + 2bh + 2bl$	Volume = $lbh$
Area = $2\pi r^2 + 2\pi rh$	Volume = $\pi r^2 h$
Area = $\pi r^2 + \pi rl$	Volume = $\frac{1}{3}\pi r^2 h$
$= \pi r^2 + \pi r\sqrt{h^2 + r^2}$	
Area = $4\pi r^2$	Volume = $\frac{4}{3}\pi r^3$
	Volume = $\frac{1}{3}Bh$

	<b>Solution/Oplissing</b>	<b>Marks Punte</b>
7.1		(4)
7.2		(4)



7.3.1		(3)
7.3.2		(1)
7.3.3		(2)

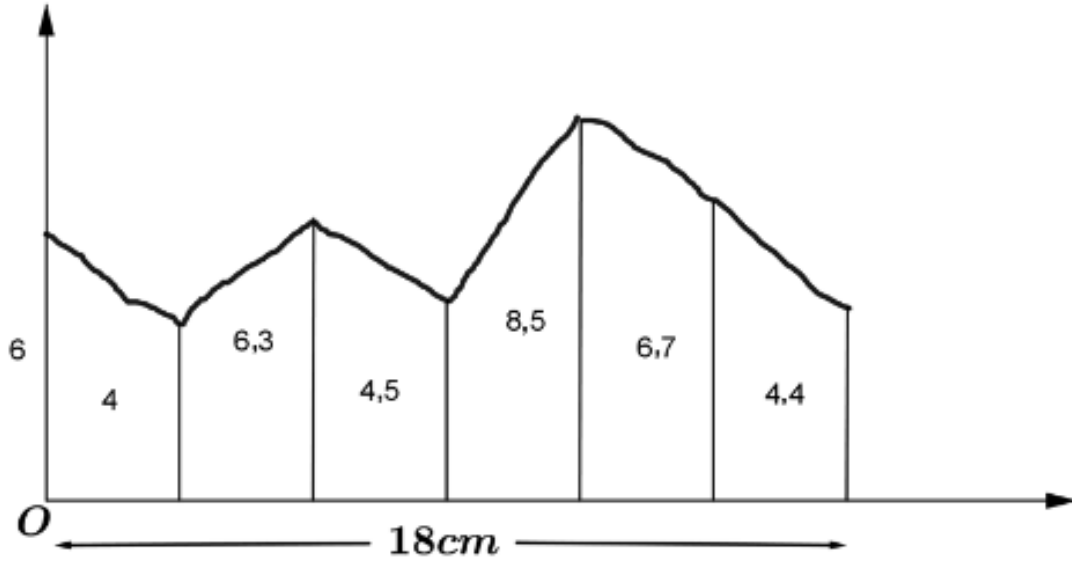
7.4



	<b>Solution/Oplissing</b>	<b>Marks Punte</b>
7.4.1		(3)
7.4.2		(3)

7.5.1		(2)
7.5.2		(5)
	[27]	

QUESTION/VRAAG 8



	Solution/Oplissing	Marks Punte
		(7) [7]





<b>Additional Space/Addisionele Ruimte</b>	<b>Marks Punte</b>
<b>TOTAL/TOTAAL:</b>	<b>150</b>