



Province of the  
**EASTERN CAPE**  
EDUCATION

LEARNER'S NAME/  
NAAM VAN LEERDER:

GRADE/GRAAD 12

**NATIONAL SENIOR CERTIFICATE/  
NASIONALE SENIOR SERTIFIKAAT**

**GRADE/GRAAD 12**

**JUNE/JUNIE 2019**

**TECHNICAL MATHEMATICS P2/TEGNIESE WISKUNDE V2  
SPECIAL ANSWER BOOK/SPEZIALE ANTWOORDEBOEK**

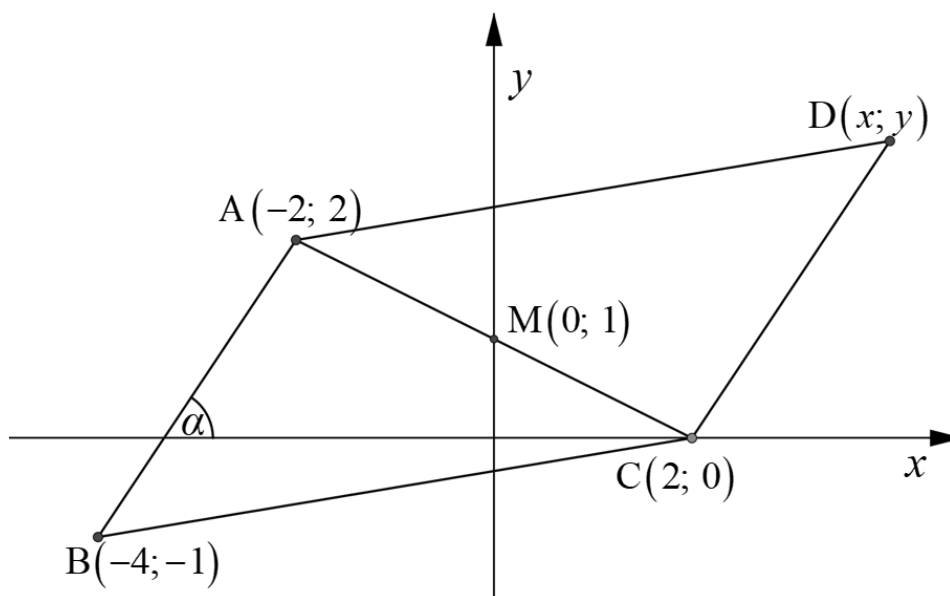
QUESTION/VRAAG	MARKS/PUNTE			HOD (Level 1 mod./Vlak 1 mod.)			DISTRICT/DISTRIK (Level 2 mod./Vlak 2 mod.)			PROVINCIAL/PROVINSIAAL (Level 3 mod./Vlak 3 mod.)		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
TOTAL/TOTAAL												



This special answer book consists of 24 pages./  
*Hierdie spesiale antwoordeboek bestaan uit 24 bladsye.*

FOLLOW THESE INSTRUCTIONS CAREFULLY	VOLG HIERDIE INSTRUKSIES NOUKEURIG
<ol style="list-style-type: none"> <li>1. Answer ALL questions in the spaces provided.</li> <li>2. No pages may be torn from this answer book.</li> <li>3. Answers must be written in black/blue ink as distinctly as possible. Do not write in the margins.</li> <li>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.</li> <li>5. Draw a line through any work/rough work that must not be marked.</li> <li>6. In the event that you use the additional space provided: <ol style="list-style-type: none"> <li>6.1 Write down the number of the question.</li> <li>6.2 Leave a line and rule off after your answer.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Beantwoord ALLE vrae in die ruimtes wat voorsien is.</li> <li>2. Geen bladsye mag uit hierdie antwoordeboek geskeur word nie.</li> <li>3. Skryf die antwoorde so duidelik moontlik met swart/blou ink. Moenie in die kantlyn skryf nie.</li> <li>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.</li> <li>5. Trek 'n netjiese lyn deur enige werk/rofwerk wat nie nagesien moet word nie.</li> <li>6. Ingeval jy die bykomende ruimte wat voorsien word, gebruik: <ol style="list-style-type: none"> <li>6.1 Skryf die nommer van die vraag neer.</li> <li>6.2 Laat 'n lyn oop en trek 'n lyn na jou antwoord.</li> </ol> </li> </ol>

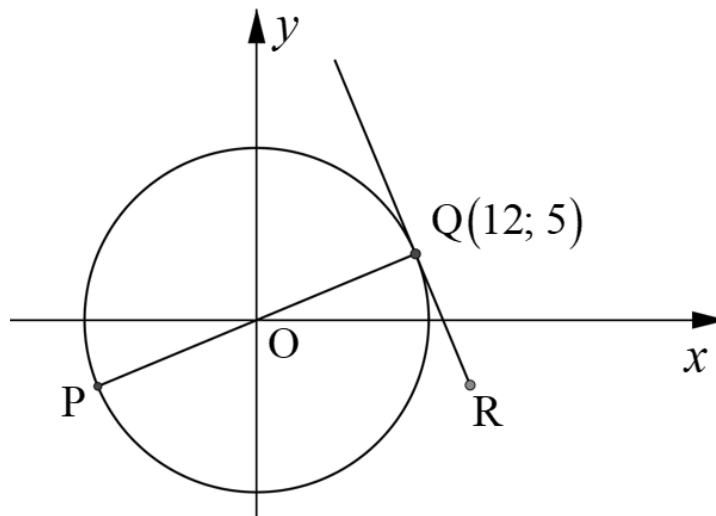
## QUESTION/VRAAG 1



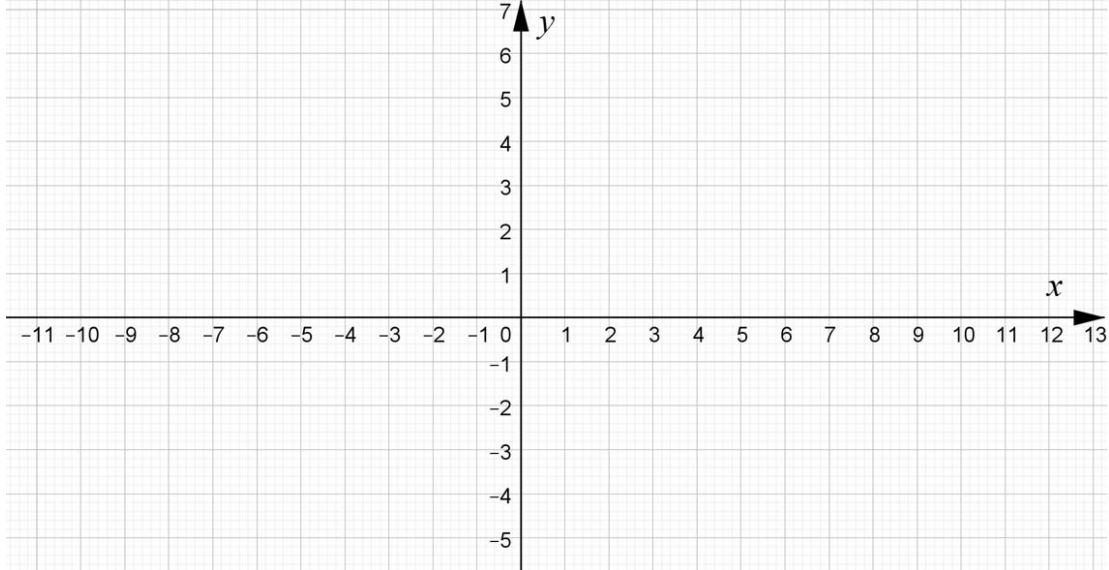
	Solution/Oplissing	Marks/ Punte
1.1		(2)
1.2		(2)
1.3		(3)

	<b>Solution/Oplossing</b>	<b>Marks/ Punte</b>
1.4		(2)
1.5		(2)
		<b>[11]</b>

## QUESTION/VRAAG 2



	Solution/Oplissing	Marks/ Punte
2.1.1		(2)
2.1.2		(4)
2.2.1		(2)

	Solution/Oplissing	Marks/ Punte
2.2.2		(2)
2.2.3		(3)
		<b>[13]</b>

## QUESTION/VRAAG 3

	Solution/Oplissing	Marks/ Punte
3.1	$\frac{\cos ec^2 100^\circ}{-\sec 80^\circ}$	(2)
3.2.1	$\tan(180^\circ - \theta) \cdot \cos^2(180^\circ + \theta) + \cos(180^\circ - \theta) \cdot \sin \theta \cdot \sec \frac{\pi}{3}$	(7)
3.2.2	$\frac{1 - \sin^2 x \cdot \cot^2 x}{2 \sin^2 x + 2 \cos^2 x}$	(4)

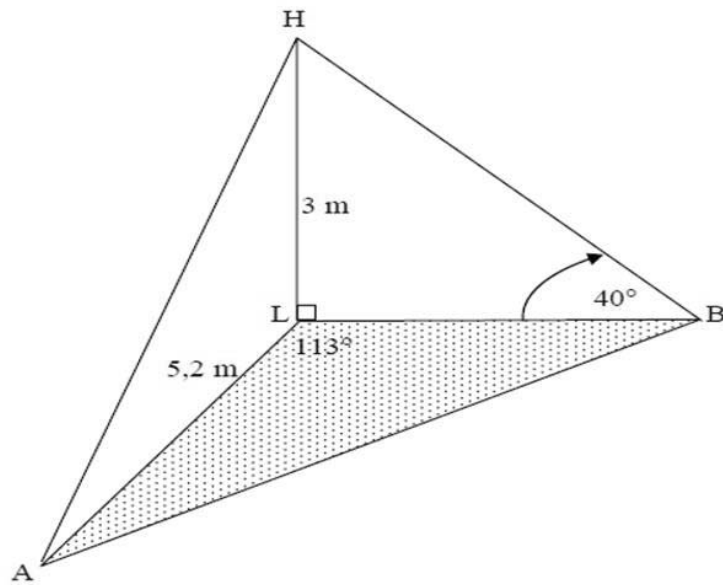
	<b>Solution/Oplossing</b>	<b>Marks/ Punte</b>
3.3	$\frac{2}{\sec \theta \sec(360^\circ - \theta) - \tan 45^\circ} = 2 \cot^2 \theta$	
		(4)
		<b>[17]</b>



**QUESTION/VRAAG 4**

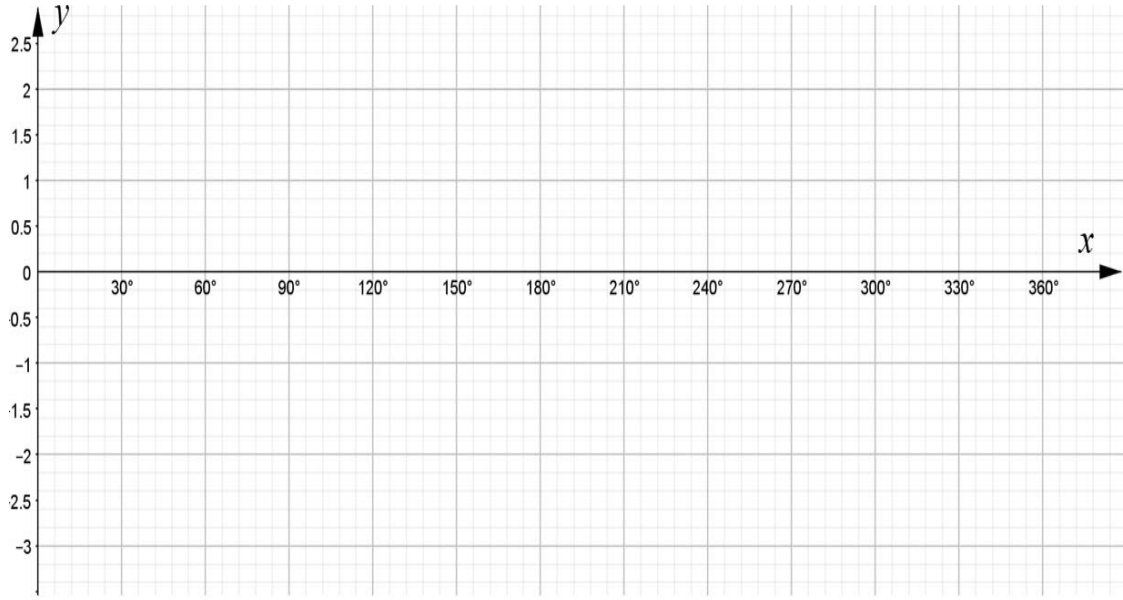
	<b>Solution/Oplossing</b>	<b>Marks/ Punte</b>
4.1.1		(4)
4.1.2		(3)
4.2		(5)
		<b>[12]</b>

## QUESTION/VRAAG 5



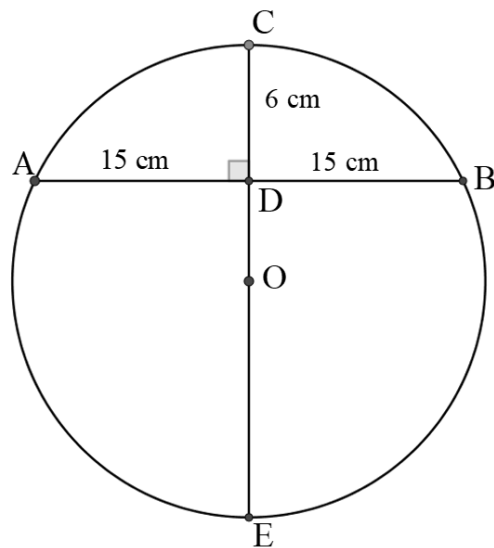
	Solution/Oplossing	Marks/ Punte
5.1		(1)
5.2		(2)
5.3		(3)
5.4		(3)
		[9]

## QUESTION/VRAAG 6

	Solution/Oplissing	Marks/ Punte
6.1		(6)
6.2		(1)
6.3		(1)
6.4		(4)
		[12]

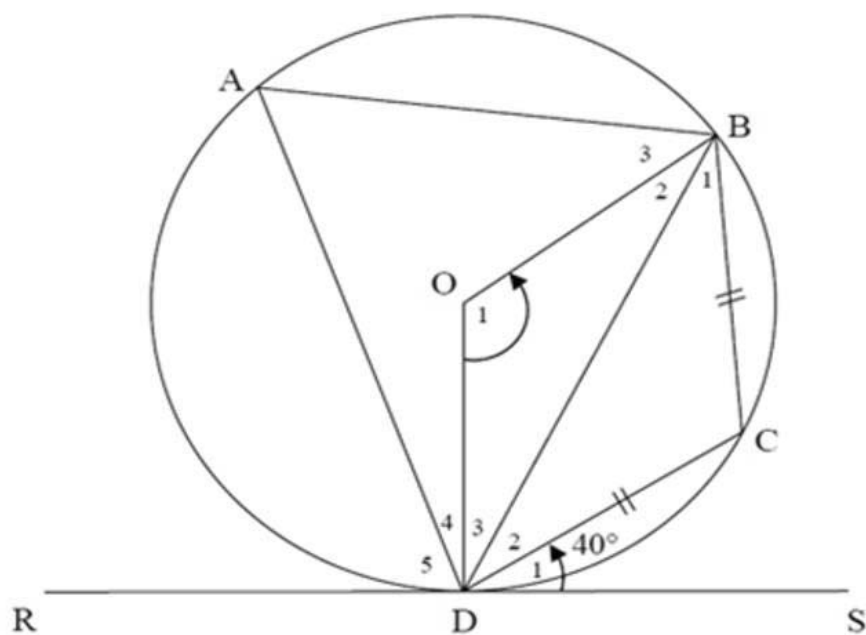
## QUESTION/VRAAG 7

	Solution/Oplissing	Marks/ Punte
7.1.1		(1)
7.1.2		(1)
7.1.3		(1)



	Solution/Oplissing	Marks/ Punte
7.2.1		(4)

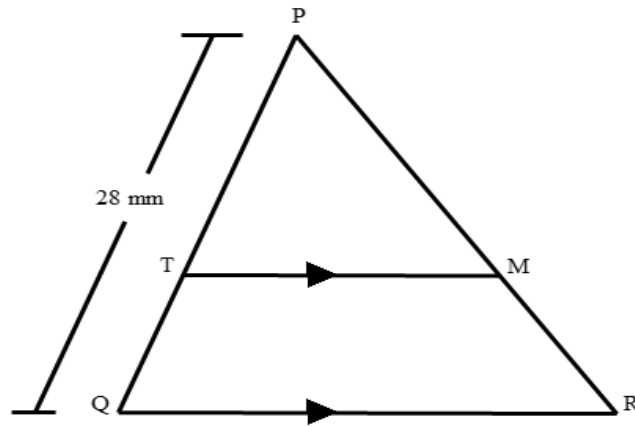
	Solution/Oplissing	Marks/ Punte
7.2.2		(3)



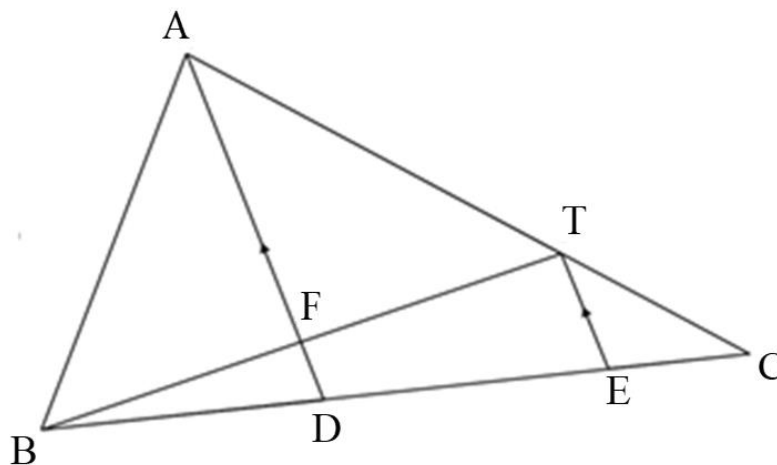
	Solution/Oplissing	Marks/ Punte
7.3.1		(2)
7.3.2		(3)

	<b>Solution/<i>Oplossing</i></b>	<b>Marks/ <i>Punte</i></b>
7.3.3		(3)
7.3.4		(3)
		<b>[21]</b>

## QUESTION/VRAAG 8



	Solution/Oplissing	Marks/ Punte
8.1		(4)

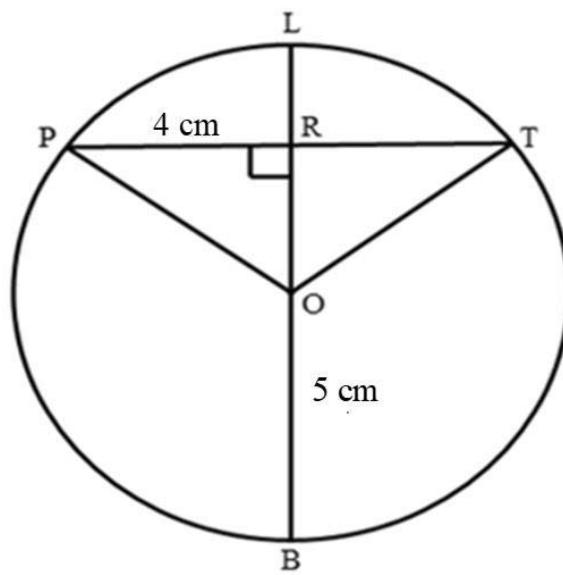


	Solution/Oplissing	Marks/ Punte
8.2.1		(2)

	<b>Solution/Oplossing</b>	<b>Marks/ Punte</b>
8.2.2		(4)
8.2.3		(4)
8.2.4		(3)
		<b>[17]</b>

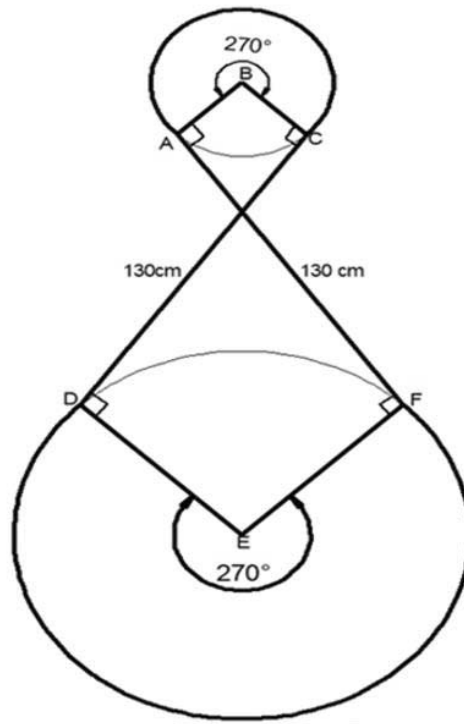


## QUESTION/VRAAG 9



	Solution/Oplissing	Marks/ Punte
9.1		(5)

9.2



	Solution/Oplossing	Marks/ Punte
9.2.1		(4)
9.2.2		(2)

	<b>Solution/Oplissing</b>	<b>Marks/ Punte</b>
9.3.1		(4)
9.3.2		(5)
		<b>[20]</b>

**QUESTION/VRAAG 10**

	<b>Solution/Oplossing</b>	<b>Marks/ Punte</b>
10.1.1		(1)
10.1.2		(1)
10.1.3		(2)
10.1.4		(2)

	<b>Solution/<i>Oplossing</i></b>	<b>Marks/ <i>Punte</i></b>
10.1.5(a)		(4)
10.1.5(b)		(2)
10.2.1		(3)
10.2.2		(3)
		<b>[18]</b>

	<b>Additional Space/<i>Addisionele Ruimte</i></b>	<b>Marks/ <i>Punte</i></b>

	<b>Additional Space/Addisionele Ruimte</b>	<b>Marks/ Punte</b>

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