



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2020

**MATHEMATICS P2
(EXEMPLAR)**

MARKS: 100

TIME: 2 hours

This question paper consists of 10 pages and an answer book of 14 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 6 questions.
2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.
3. Clearly show ALL calculations, diagrams, graphs, et cetera that you have used in determining the answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers to TWO decimal places, unless stated otherwise.
7. Diagrams are NOT necessarily drawn to scale.
8. Number the answers correctly according to the numbering system used in this question paper.
9. Write neatly and legibly.

QUESTION 1

1.1 The following mathematics test marks were recorded for a Grade 10A class of 28 students.

MARKS	FREQUENCY	MIDPOINTS	MIDPOINT \times FREQUENCY
$0 < x \leq 30$	2	15	30
$30 < x \leq 40$	3	35	105
$40 < x \leq 50$	11	45	495
$50 < x \leq 60$	7	55	
$60 < x \leq 70$	3		195
$70 < x \leq 80$	2	75	150
$80 < x \leq 100$	0	90	0

1.1.1 Complete the table above by filling in the two missing numbers. (2)

1.1.2 Calculate an estimate of the mean mark. (2)

1.1.3 Represent the data on a frequency polygon. (3)

1.1.4 In which interval does the

(a) median lie? (2)

(b) 80th percentile lie? (2)

1.2 The following Mathematics test marks of a Grade 10B class are recorded below:

45	49	50	51	51	53	54	57	57	59	60	64
65	66	70	71	73	74	75	76	83	89	89	

1.2.1 Write down the median mark for this class. (1)

1.2.2 Calculate the interquartile range mark for this class. (3)

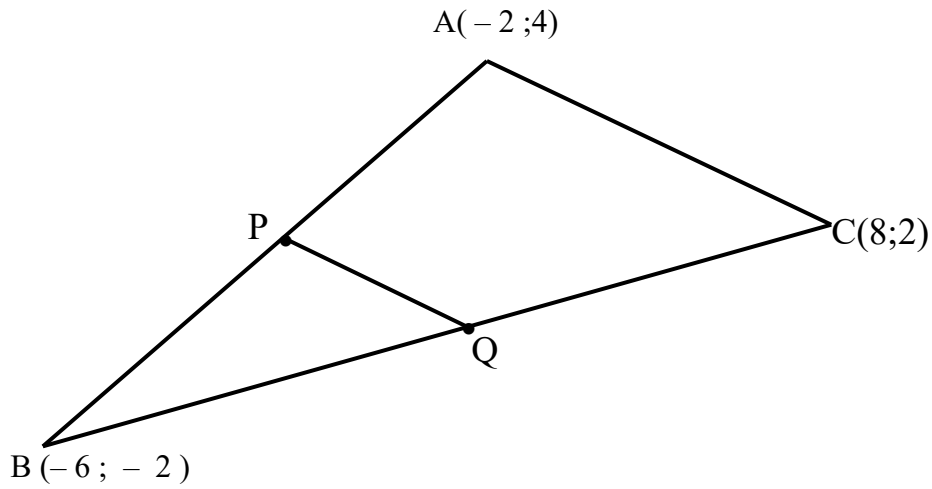
1.2.3 Represent the data on a box and whisker diagram. (3)

1.2.4 Comment on the distribution of the data with reference to the box and whisker diagram. (2)

[20]

QUESTION 2

In the diagram below, the coordinates of $\triangle ABC$ are given as $A(-2; 4)$, $B(-6; -2)$ and $C(8; 2)$. P and Q are the midpoints of AB and BC respectively.



- 2.1 Calculate the coordinates of P and Q . (4)
- 2.2 Show that:
- 2.2.1 $PQ \parallel AC$ (4)
- 2.2.2 $PQ = \frac{1}{2} AC$ (4)
- 2.3 Calculate, to two decimal places, the perimeter of $\triangle ABC$. (4)

[16]

QUESTION 3

3.1 If $x = 229,5^\circ$ and $y = 117,6^\circ$, determine to two decimal places the values of:

3.1.1 $\sin(x + y)$ (2)

3.1.2 $\cos 2y$ (2)

3.1.3 $\operatorname{cosec} x$ (2)

3.2 Determine the value of x to one decimal place:

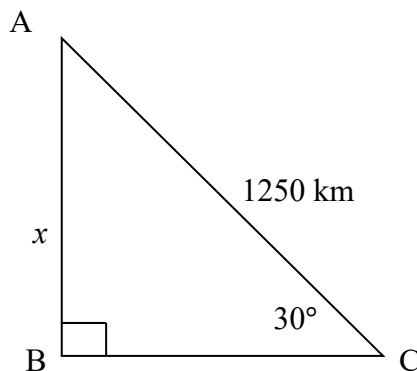
3.2.1 $\cos 2x = 0,50$ (2)

3.2.2 $7 \sec x - 11 = 0$ (3)

3.3 If $\cos x = \frac{3}{4}$ and $0^\circ < x < 90^\circ$, determine the value of $\tan x$. (3)

3.4 If $\tan \theta = \frac{6}{8}$ and $\sin \theta < 0$, determine the value of $\sec \theta - \operatorname{cosec} \theta$ (5)

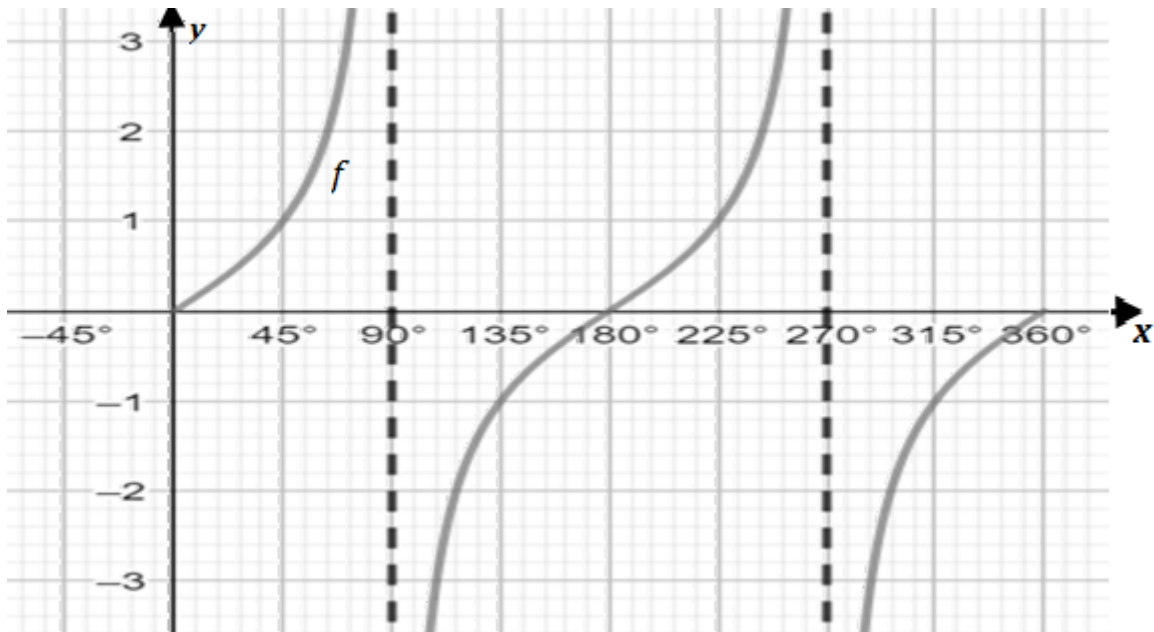
3.5 Without using a calculator, determine the value of x in the diagram below.



(2)
[21]

QUESTION 4

In the diagram below, the graph of $f(x) = \tan x$ is drawn for $x \in [0^\circ ; 360^\circ]$.



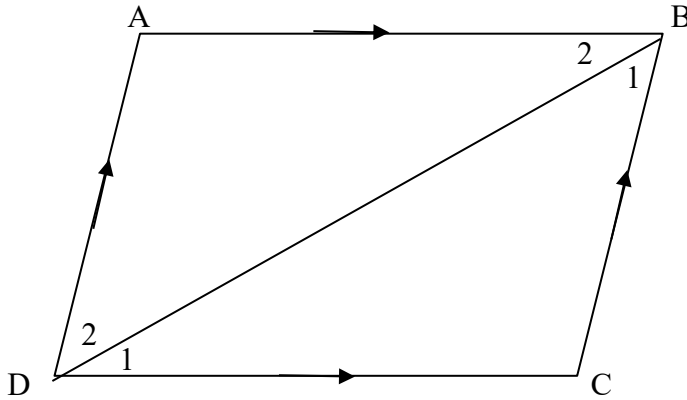
- 4.1 Sketch on the same axis the graph of $g(x) = \sin 2x$ for $x \in [0^\circ ; 360^\circ]$. (4)
- 4.2 What is the amplitude of f ? (1)
- 4.3 Write down the period of g . (1)
- 4.4 For which value(s) of x is:
- 4.4.1 $f(x) < 0$ (2)
- 4.4.2 $f(x) \cdot g(x) < 0$ (2)
- 4.5 Write down the range of $k(x)$ if $k(x) = g(x) - 1$. (2)

[12]

QUESTION 5

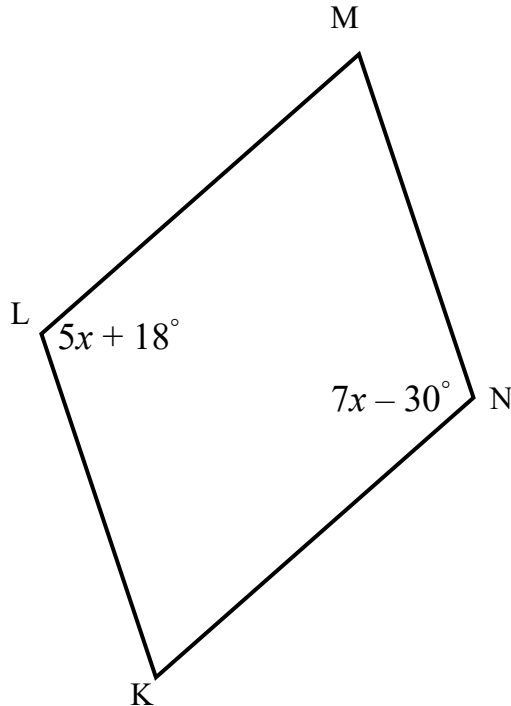
5.1 Use the diagram below to prove that the opposite sides of a parallelogram are equal, i.e. $AB = CD$ and $AD = BC$.

Hint: Prove that $\triangle ABD \cong \triangle CDB$



(4)

5.2 In the diagram below, KLMN is a parallelogram with $\hat{N} = 7x - 30^\circ$ and $\hat{L} = 5x + 18^\circ$.

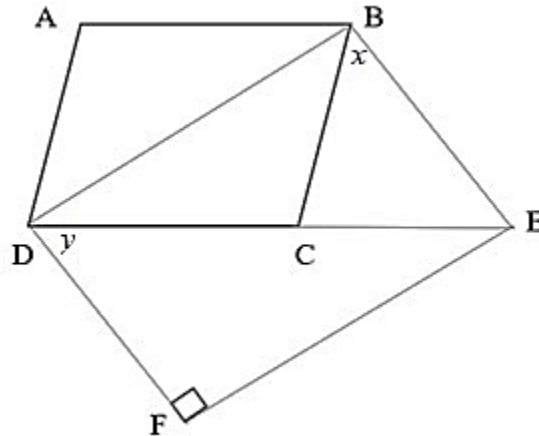


5.2.1 Calculate the value of x . (4)

5.2.2 If it is further given that $\hat{LKN} = 4y$, determine the value of y . (3)

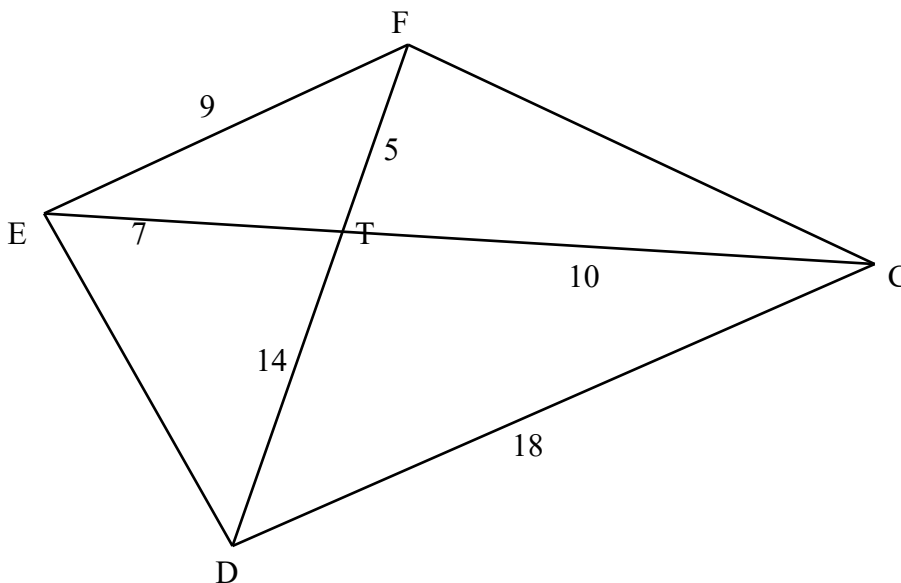
- 5.3 In the diagram below, ABCD is a parallelogram such that $AD = BE$, $\hat{A} = 124^\circ$, ED bisects \hat{BEF} and BEFD is a quadrilateral.

Calculate, with reasons, the values of x and y .



(6)

- 5.4 In the diagram below, $FT = 5$ cm, $ET = 7$ cm, $EF = 9$ cm, $CT = 10$ cm, $DT = 14$ cm and $CD = 18$ cm.

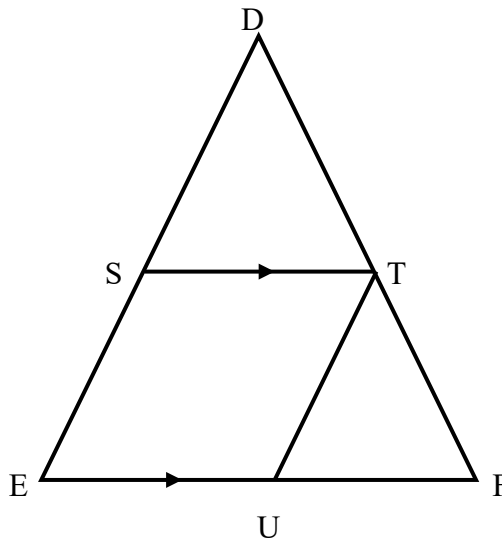


- 5.4.1 Prove that $\triangle EFT \parallel \triangle DCT$. (3)
- 5.4.2 If it is further given that $\hat{DFC} = \hat{TDC}$, prove that $\hat{FEC} = \hat{TCF}$. (3)

5.5 5.5.1 Complete the following statement for ΔABC :

If D is a point on AB and E is a point on AC such that $AD = DB$ and $DE \parallel BC$, then ... (1)

5.5.2 In ΔDEF , $DS = SE$, $EU = UF$ and $ST \parallel EF$.

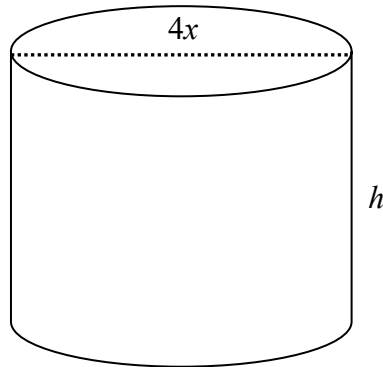


Prove that SEUT is a parallelogram. (4)
[28]

QUESTION 6

The cylinder in the diagram below has a diameter of $4x$ units and a height of h meters. The cylinder is open at the top and the total surface area of the cylinder = 32π meters.

Calculate the height of the cylinder in terms of x .



(3)
[3]

TOTAL: 100



LEARNER'S NAME: <i>LEERDERNAAM:</i>	
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GRADE 10 <i>GRAAD 10</i>	
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**NATIONAL/NASIONALE
SENIOR
CERTIFICATE/SERTIFIKAAT**

GRADE 10/GRAAD 10


NOVEMBER 2020

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

Marker/Merker			Moderator's Initials / Moderator se paraaf							
Question <i>Vraag</i>	Marks <i>Punte</i>	Initial Parafeer	Marks <i>Punte</i>	S M	Marks <i>Punte</i>	D M	Marks <i>Punte</i>	P M	Marks <i>Punte</i>	NM
1										
2										
3										
4										
5										
6										
TOTAL TOTAAL										

This special answer book consists of 14 pages./
Hierdie spesiale antwoordeboek bestaan uit 14 bladsye.

QUESTION 1/VRAAG 1																																					
Solution / Oplossing					Marks Punte																																
1.1.1	<table border="1"> <thead> <tr> <th>Marks/ Punte</th> <th>Frequency/ Frekwensie</th> <th>Midpoints/ Middelpunt</th> <th>Midpoint \times Frequency/ Middelpt \times Frekwensie</th> </tr> </thead> <tbody> <tr> <td>$0 < x \leq 30$</td> <td>2</td> <td>15</td> <td>30</td> </tr> <tr> <td>$30 < x \leq 40$</td> <td>3</td> <td>35</td> <td>105</td> </tr> <tr> <td>$40 < x \leq 50$</td> <td>11</td> <td>45</td> <td>495</td> </tr> <tr> <td>$50 < x \leq 60$</td> <td>7</td> <td>55</td> <td></td> </tr> <tr> <td>$60 < x \leq 70$</td> <td>3</td> <td></td> <td>195</td> </tr> <tr> <td>$70 < x \leq 80$</td> <td>2</td> <td>75</td> <td>150</td> </tr> <tr> <td>$80 < x \leq 100$</td> <td>0</td> <td>90</td> <td>0</td> </tr> </tbody> </table>				Marks/ Punte	Frequency/ Frekwensie	Midpoints/ Middelpunt	Midpoint \times Frequency/ Middelpt \times Frekwensie	$0 < x \leq 30$	2	15	30	$30 < x \leq 40$	3	35	105	$40 < x \leq 50$	11	45	495	$50 < x \leq 60$	7	55		$60 < x \leq 70$	3		195	$70 < x \leq 80$	2	75	150	$80 < x \leq 100$	0	90	0	(2)
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1.1.2					(2)																																
1.1.3	<p style="text-align: center;">FREQUENCY POLYGON OF GRADE 10 MATHEMATICS CLASS FREKWENSIE-POLIGOON VAN GRAAD 10 WISKUNDEKLAS</p> <p style="text-align: center;">GRADE 10 MATHEMATICS MARKS GRAAD 10 WISKUNDEPUNTE</p>				(3)																																
1.1.4 (a)					(2)																																
1.1.4 (b)					(2)																																

1.2	45	49	50	51	51	53	54	57	57	59	60	64	
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1.2.1													(1)
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1.2.3													(3)
													
1.2.4													(2)
													[20]

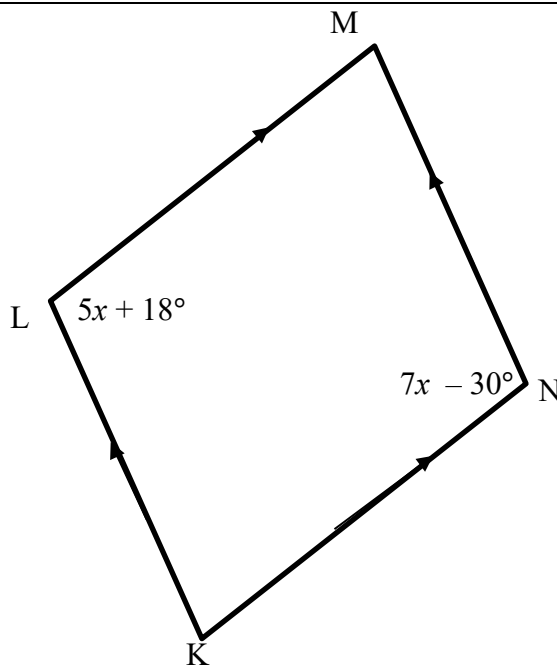
QUESTION 2/VRAAG 2		
	Solution / Oplossing	Marks Punte
	<p>A coordinate plane showing a triangle ABC with vertices A(-2;4), B(-6;-2), and C(8;2). Point P is on side AB and point Q is on side BC. A line segment PQ is drawn.</p>	
2.1	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	(4)
2.2.1	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	(4)

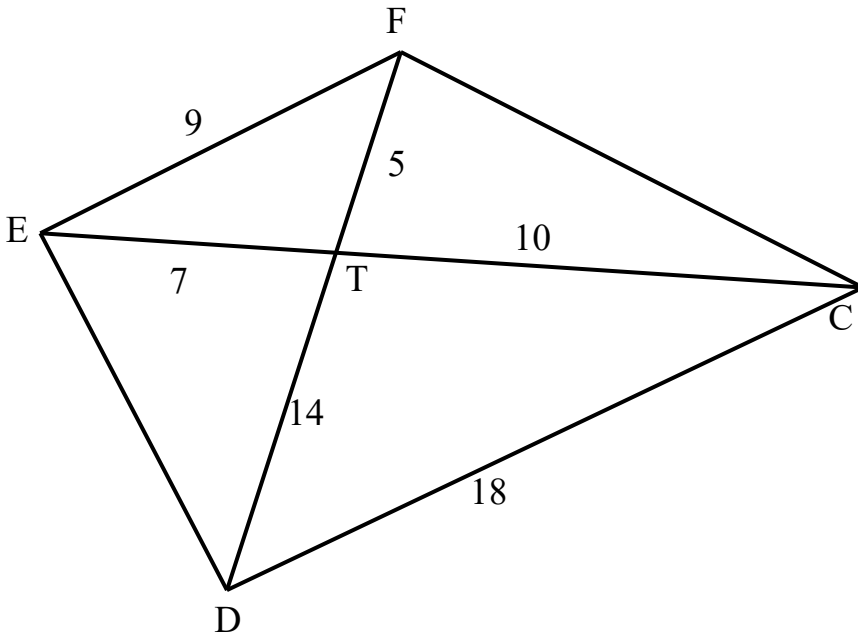
2.2.2		
		(4)
2.3		
		(4)
	[16]	

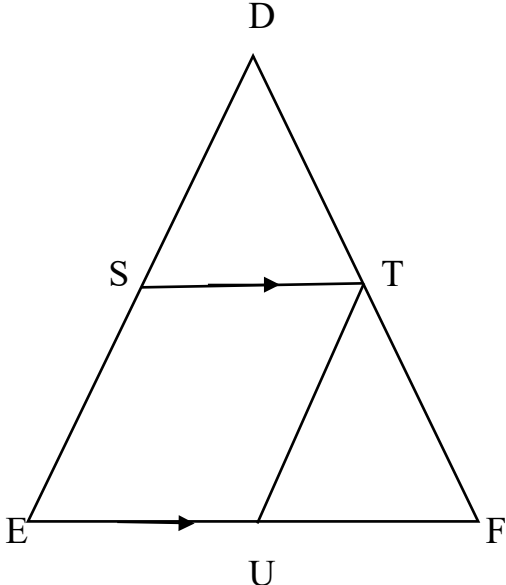
QUESTION 3 / VRAAG 3		
	Solution / Oplossing	Marks Punte
3.1.1		(2)
3.1.2		(2)
3.1.3		(2)
3.2.1		(2)
3.2.2		(3)

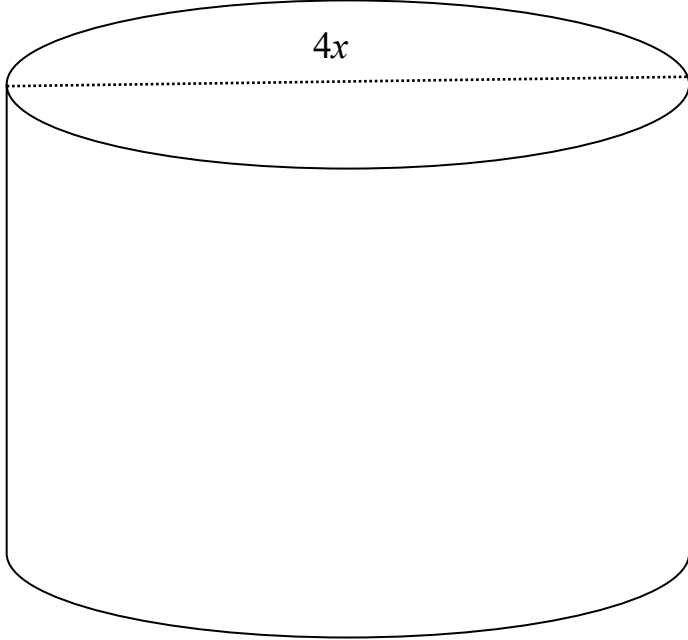
	Solution / <i>Oplossing</i>	Marks <i>Punte</i>
3.3		(3)
3.4		(5)
3.5		(2)
		[21]

QUESTION 4 / VRAAG 4		
	Solution / Oplossing	Marks Punte
4.1.		(4)
4.2		(1)
4.3		(1)
4.4.1		(2)
4.4.2		(2)
4.5		(2)
		[12]

	Solution / <i>Oplossing</i>	Marks <i>Punte</i>
5.2		
5.2.1	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	(4)
5.2.2	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	(3)

	Solution / Oplossing	Marks Punte
5.4		
5.4.1	<div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div>	(3)
5.4.2	<div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div> <div style="border-bottom: 1px solid black; height: 20px; width: 100%;"></div>	(3)

	Solution / Oplissing	Marks Punte
5.5.1		
5.5.2		(1)
		(4)
		[28]

QUESTION 6 / VRAAG 6		
	Solution / Oplossing	Marks Punte
	 <p>A diagram of a cylinder. The top circular face is shown in perspective. A horizontal dashed line across the top face represents the diameter, which is labeled $4x$. The vertical height of the cylinder is labeled h.</p>	
		(3)
		[3]
	TOTAL/TOTAAL:	100



Province of the
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**NATIONAL
SENIOR CERTIFICATE
*NASIONALE
SENIOR SERTIFIKAAT***

GRADE/*GRAAD* 10

NOVEMBER 2020

**MATHEMATICS P2/*WISKUNDE V2*
MARKING GUIDELINE/*NASIENRIGLYN*
(*EXEMPLAR/EKSEMPLAAR*)**

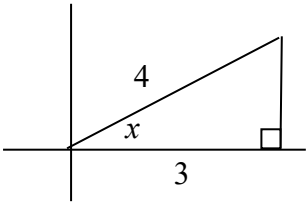
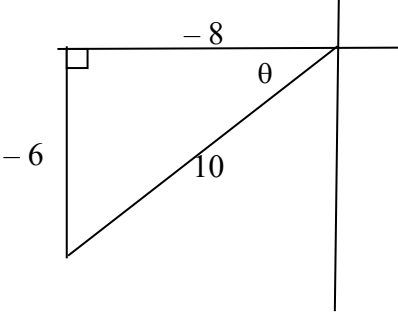
MARKS/*PUNTE*: 100

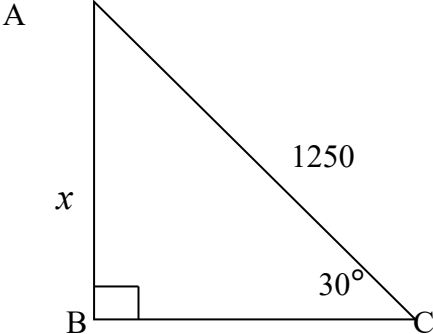
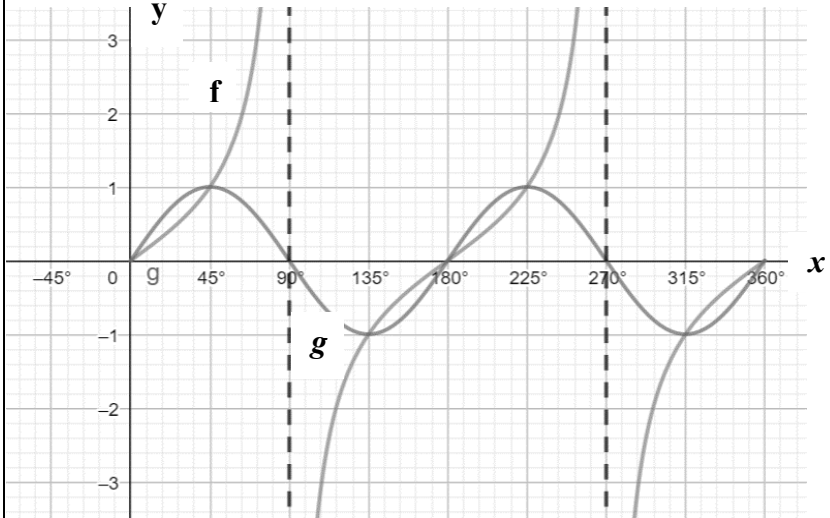
This marking guideline consists of 11 pages./
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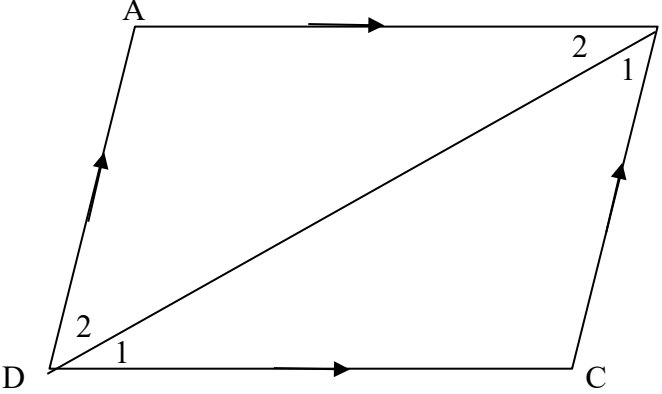
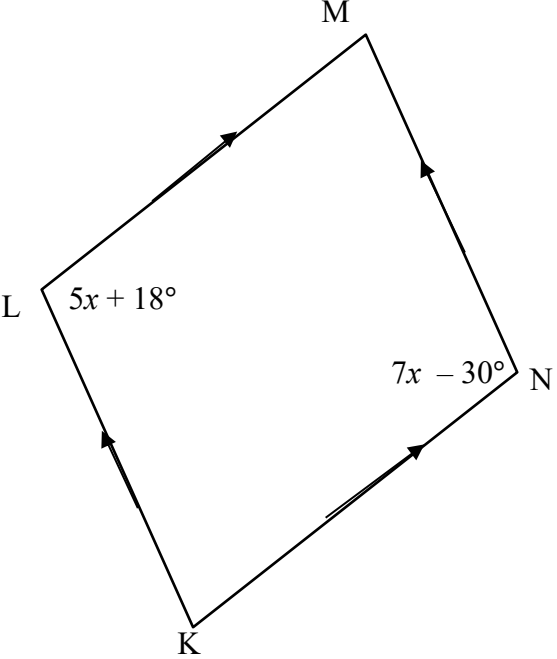
QUESTION 1/VRAAG 1																																							
1.1	<table border="1"> <thead> <tr> <th>Marks/ Punte</th> <th>Frequency/ Frekwensie</th> <th>Midpoints/ Middelpt</th> <th>Midpoint × Frequency/ Middelpt × Frekwensie</th> </tr> </thead> <tbody> <tr> <td>$0 < x \leq 30$</td> <td>2</td> <td>15</td> <td>30</td> </tr> <tr> <td>$30 < x \leq 40$</td> <td>3</td> <td>35</td> <td>105</td> </tr> <tr> <td>$40 < x \leq 50$</td> <td>11</td> <td>45</td> <td>495</td> </tr> <tr> <td>$50 < x \leq 60$</td> <td>7</td> <td>55</td> <td>385</td> </tr> <tr> <td>$60 < x \leq 70$</td> <td>3</td> <td>65</td> <td>195</td> </tr> <tr> <td>$70 < x \leq 80$</td> <td>2</td> <td>75</td> <td>150</td> </tr> <tr> <td>$80 < x \leq 100$</td> <td>0</td> <td>90</td> <td>0</td> </tr> <tr> <td></td> <td>28</td> <td></td> <td>1360</td> </tr> </tbody> </table>	Marks/ Punte	Frequency/ Frekwensie	Midpoints/ Middelpt	Midpoint × Frequency/ Middelpt × Frekwensie	$0 < x \leq 30$	2	15	30	$30 < x \leq 40$	3	35	105	$40 < x \leq 50$	11	45	495	$50 < x \leq 60$	7	55	385	$60 < x \leq 70$	3	65	195	$70 < x \leq 80$	2	75	150	$80 < x \leq 100$	0	90	0		28		1360	✓ 385 ✓ 65	(2)
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	28		1360																																				
1.1.2	Estimate of the mean/ <i>Benaderde gemiddelde</i> = $\frac{1360}{28}$ = 48,6	✓ 1360 ✓ 48,6	(2)																																				
1.1.3	<p>Grade 10 Mathematics Marks/<i>Graad 10 Wiskundepunte</i></p>	✓✓ mdpts / <i>middelptunte</i> Line joining midpoints / <i>Lyn verbind</i> <i>middelptunte</i>	(3)																																				
1.1.4 (a)	$40 < x \leq 50$	✓ Endpoint / <i>Eindpunt</i> ✓ Notation / <i>Notasie</i>	(2)																																				
1.1.4 (b)	2,4 $50 < x \leq 60$	✓ 22,4 ✓ Interval / <i>Interval</i>	(2)																																				

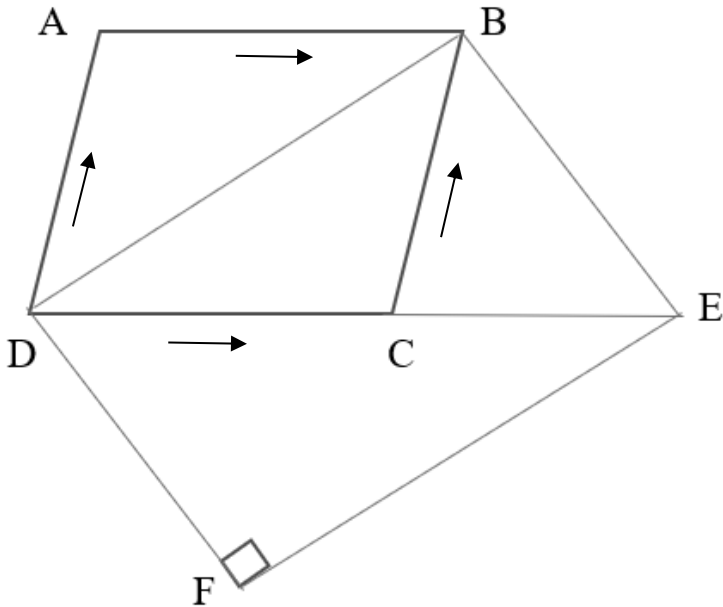
1.2	<table border="1"><tr><td>45</td><td>49</td><td>50</td><td>51</td><td>51</td><td>53</td><td>54</td><td>57</td><td>57</td><td>59</td><td>60</td><td>64</td></tr><tr><td>65</td><td>66</td><td>70</td><td>71</td><td>73</td><td>74</td><td>75</td><td>76</td><td>83</td><td>89</td><td>89</td><td></td></tr></table>	45	49	50	51	51	53	54	57	57	59	60	64	65	66	70	71	73	74	75	76	83	89	89			
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1.2.1	Median = 64	✓ answer / antwoord	(1)																								
1.2.2	$IQR = Q_3 - Q_1$ $= 74 - 53$ $= 21$	✓ Q_3 ✓ Q_1 ✓ answer / antwoord	(3)																								
1.2.3	<p>A box plot is drawn on a horizontal number line. The number line is labeled with values 45, 50, 55, 60, 65, 70, 75, 80, 85, and 90. The box plot has a minimum whisker at 45, a box from 53 to 74 with a vertical line at 64, and a maximum whisker at 89.</p>	✓ Min./Min. Max./Maks. ✓ Q_1 Q_3 ✓ Q_2	(3)																								
1.2.4	Skewed to the left / <i>Skeef na links</i>	✓✓ answer / antwoord	(2)																								
			[20]																								

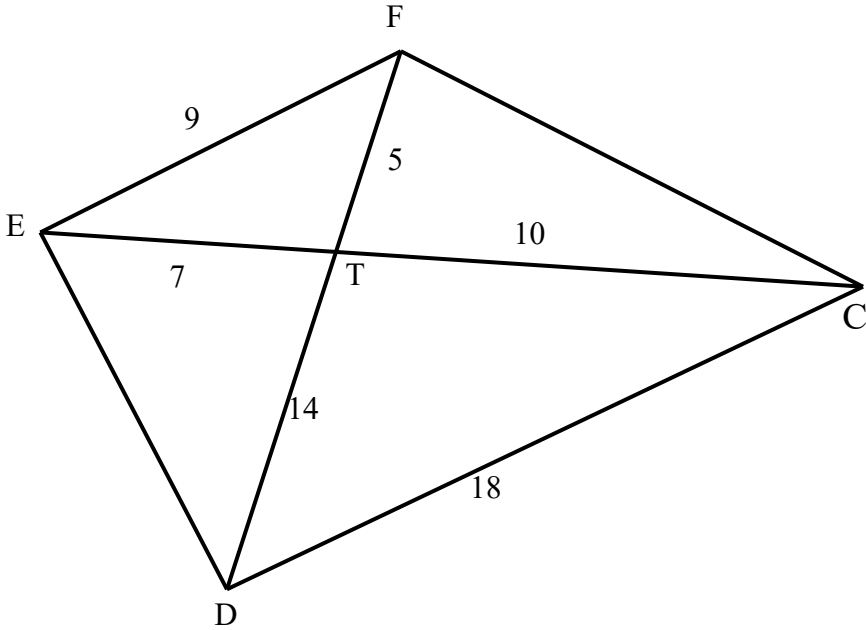
QUESTION 2/VRAAG 2			
2.1	$P_{\text{midpoint/middelpunt}} = \left(\frac{-6+(-2)}{2}; \frac{4+(-2)}{2} \right)$ $Q_{\text{midpoint/middelpunt}} = \left(\frac{-6+8}{2}; \frac{-2+2}{2} \right)$ $P = (-4; 1)$ $Q = (1; 0)$	✓ form / vorm ✓ P ✓ form / vorm ✓ Q	(4)
2.2.1	Gradient of/Gradiënt van PQ = $m_{PQ} = \frac{0-1}{1-(-4)} = -\frac{1}{5}$ Gradient of/Gradiënt van AC = $m_{AC} = \frac{2-4}{8-(-2)} = -\frac{1}{5}$	✓ form/ vorm ✓ m_{PQ} ✓ form/ vorm ✓ m_{AC}	(4)
2.2.2	Distance of/Afstand van PQ = $d_{PQ} = \sqrt{(1-(-4))^2 + (0-1)^2}$ $= \sqrt{26}$ $= 5,1$ Distance of/Afstand van AC = $d_{AC} = \sqrt{(8-(-2))^2 + (2-4)^2}$ $= \sqrt{104}$ $= 10,2$ $\therefore PQ = \frac{1}{2} AC$	✓ form/ vorm ✓ d_{PQ} ✓ form/ vorm ✓ d_{AC}	(4)
2.3	Distance of/Afstand van AB $d_{AB} = \sqrt{(-2-(-6))^2 + (4-(-2))^2}$ $= \sqrt{52}$ Distance of/Afstand van BC $d_{BC} = \sqrt{(8-(-6))^2 + (2-(-2))^2}$ $= \sqrt{212}$ $\therefore \text{perimeter} = \sqrt{52} + \sqrt{212} + \sqrt{104}$ $= 31,97$	✓ d_{AB} ✓ d_{BC} ✓ add / optel ✓ answer / antwoord	(4)
			[16]

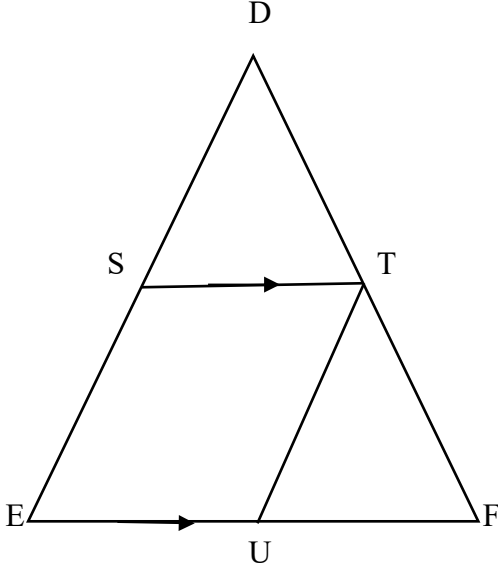
QUESTION 3 / VRAAG 3				
3.1.1	$\sin(x + y)$ $= \sin(229,5^\circ + 117,6^\circ) = -0,22$	✓ substitution / vervanging ✓ answer / antwoord	(2)	
3.1.2	$\cos 2y$ $= \cos(2 \times 117,6^\circ) = -0,57$	✓ substitution / vervanging ✓ answer / antwoord	(2)	
3.1.3	$\operatorname{cosec} x$ $= \frac{1}{\sin 229,5^\circ} = -1,32$	✓ ✓ answer/ antwoord	(2)	
3.2.1	$\cos 2x = 0,5$ $2x = 60^\circ$ $x = 30^\circ$	✓ 60° ✓ 30°	(2)	
3.2.2	$7 \sec x - 11 = 0$ $\sec x = \frac{11}{7}$ $\cos x = \frac{7}{11}$ $x = 50,5^\circ$	✓ $\sec x$ ✓ $\cos x$ ✓ answer/antwoord	(3)	
3.3	$\operatorname{opp}^2 = 4^2 - 3^2$ $\operatorname{opp} = \sqrt{7}$ $\therefore \tan x = \frac{\sqrt{7}}{3}$		✓ opp/teenoorg. ✓ diagram/ diagram ✓ answer/antwoord	(3)
3.4	$\operatorname{hyp}^2 = 6^2 + 8^2$ $\operatorname{hyp} = 10$ $\sec \theta - \operatorname{cosec} \theta$ $= \frac{10}{-8} - \frac{10}{-6}$ $= \frac{5}{12}$		✓ hyp/skuinssy ✓ quadr/kwadr ✓ - 8 and/en - 6 ✓ substitution/ vervanging ✓ answer/antwoord	(5)

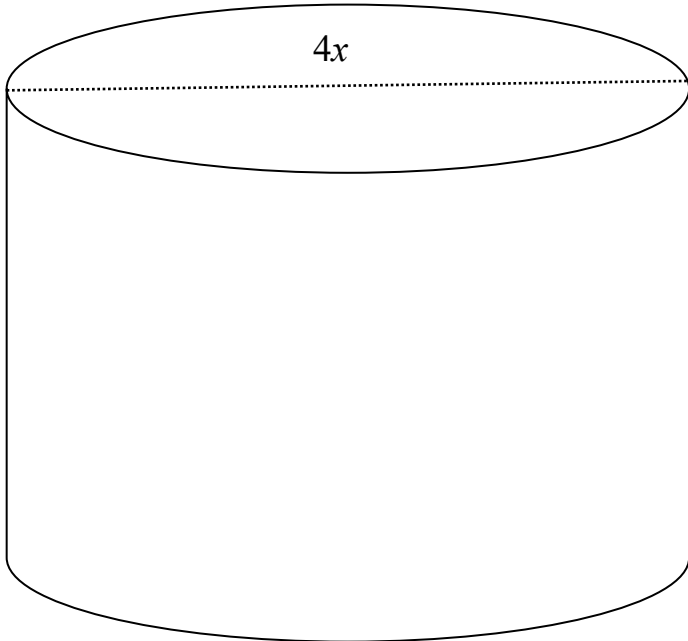
3.5	$\sin 30^\circ = \frac{x}{1250}$ $x = 625$	<p>A</p> 	<p>✓ correct ratio/ korrekte verhoud.</p> <p>✓ answer/antwoord</p>	(2)
[21]				
QUESTION 4 / VRAAG 4				
4.1.			<p>✓ (0;0)</p> <p>✓ shape/vorm</p> <p>✓ period/periode</p> <p>✓ amplitude</p>	(4)
4.2	Amplitude of/van $f = \infty$	✓ answer / antwoord	(1)	
4.3	Period of/Periode van g is 180°	✓ answer / antwoord	(1)	
4.4.1	$90^\circ < x < 180^\circ$ and/en $270^\circ < x < 360^\circ$	<p>✓ 1st int/1^{ste} int</p> <p>✓ 2nd int/2^{de} int</p>	(2)	
4.4.2	$90^\circ < x < 180^\circ$	<p>✓endpt. / eindpt.</p> <p>✓notation / notasie</p>	(2)	
4.5	<p>Range of / Waardeversameling van $k(x)$ if / as $k(x) = g(x) - 1$</p> $-2 \leq y \leq -1$	<p>✓endpt. / eindpt.</p> <p>✓notation / notasie</p>	(2)	
[12]				

QUESTION 5/VRAAG 5		
5.1		
	<p>BD is common / <i>gemeen</i></p> <p>$\hat{B}_1 = \hat{D}_2$ (alt / <i>verwisselende</i> \angle, AB // CD)</p> <p>$\hat{B}_2 = \hat{D}_1$ (alt / <i>verwisselende</i> \angle, BC // AD)</p> <p>$\therefore \triangle ABD \equiv \triangle CDB$ (\angle, \angle, S)</p> <p>$\therefore AB = CD$ and / <i>en</i> $AD = BC$ ($\equiv \Delta$'s / <i>e</i>)</p>	<p>✓ common / <i>gemeen</i></p> <p>✓ SR</p> <p>✓ SR</p> <p>✓ \angle, \angle, S</p>
5.2		
5.2.1	<p>$5x + 18^\circ = 7x - 30^\circ$ (opposite \angle's of a parallelogram / <i>teenoorste</i> \anglee van 'n <i>parallelogram</i>)</p> <p>$-2x = -30^\circ - 18^\circ$ $-2x = -48^\circ$ $x = 24^\circ$</p>	<p>✓ SR</p> <p>✓</p> <p>- 2x</p> <p>✓</p> <p>- 48°</p> <p>✓</p> <p>Ans. / <i>Antw.</i> = 24°</p>

5.2.2	$5(24^\circ) + 18^\circ + 4y = 180^\circ$ (Co-int \angle 's / <i>Ko-binne \angle'e</i> $LM \parallel KN$) $4y = 180^\circ - 138^\circ$ $y = 10,5^\circ$	\checkmark SR \checkmark $4y = 42^\circ$ \checkmark Answer / <i>Antw.</i> $= 10,5^\circ$	(3)
5.3			
	$\widehat{BCD} = 124^\circ$ (opp angles of parallelogram are equal / <i>teenoorste \anglee van 'n parallelogram</i>) $\widehat{BCE} = 56^\circ$ (angles on str line / <i>\anglee op 'n reguit lyn</i>) $\widehat{BCE} = \widehat{BEF}$ (base \angle 's of isosceles triangle / <i>teenoorste \anglee van 'n parallelogram</i>) $x = 180^\circ - (56^\circ + 56^\circ)$ (angles of a triangle) $= 68^\circ$ $\widehat{DEF} = 56^\circ$ $\therefore y = 34^\circ$ (angles of a triangle)	\checkmark SR \checkmark S \checkmark S \checkmark $x = 68^\circ$ \checkmark $\widehat{DEF} = 56^\circ$ \checkmark $y = 34^\circ$	(6)

5.4			
5.4.1	<p>In ΔFTE and / en ΔCTD:</p> $\frac{FT}{TC} = \frac{ET}{TD} = \frac{EF}{CD} = \frac{1}{2}$ <p>$\therefore \Delta EFT \parallel \Delta DCT$ (sides are in proportion / sye is eweredig)</p>	<p>✓ ratio / verhouding</p> <p>✓ ratio / verhouding</p> <p>✓ R</p>	(3)
5.4.2	<p>$\hat{F}EC = \hat{T}DC$ (\parallel)</p> <p>But / Maar $\hat{D}FC = \hat{T}DC$ (given / gegee)</p> <p>$\therefore \hat{F}EC = \hat{T}DC = \hat{T}FC$</p>	<p>✓ R</p> <p>✓ given / gegee</p> <p>✓ conclusion / gevolgtrekking</p>	(3)
5.5.1	<p>$AE = EC$ and / en $DE = \frac{1}{2} BC$</p>	<p>✓ S</p>	(1)

5.5.2			
	<p> $ST \parallel EF$ (given / <i>gegee</i>) $DT = TF$ (converse of midpoint theorem / <i>omgekeerde van middelpuntstelling</i>) $\therefore TU \parallel SE$ (converse of midpoint theorem / <i>omgekeerde van middelpuntstelling</i>) \therefore SEUT is a parallelogram / <i>'n parallelogram</i> (both pairs of opposite sides \parallel/beide pare teenoorstaande sye is \parallel) </p>	<p> $\checkmark\checkmark$SR \checkmark R \checkmark R </p>	(4)
			[28]

QUESTION 6 / VRAAG 6		
		
<p>TSA of an open cylinder / <i>TBO van 'n oop silinder</i></p> $= \pi \times r^2 + 2 \times \pi \times r \times h$ $32\pi = \pi \times (2x)^2 + 2 \times \pi \times 2x \times h$ $h = \frac{32\pi - 4\pi x^2}{4\pi x}$ $h = \frac{8}{x} - x$	<p>✓ formula / <i>formule</i> ✓ subst / <i>vervanging</i> ✓ Answer of <i>h</i> in terms of <i>x</i> / <i>Antwoord van h in terme van x</i></p> <p>(3)</p>	
		[3]
TOTAL/TOTAAL:		100