



MARKS: 125

This memorandum consists of 9 pages.

Important Information

- This is a marking guideline. In instances where learners have used different but mathematically sound strategies to solve the problems, they (learners) should be credited.
- Unless otherwise stated, learners who give a correct answer only, should be awarded full marks.
- Underline errors committed by learners and apply Consistent Accuracy (CA) marking.

KEY	
M	Method mark
CA	Consistent Accuracy mark
A	Accuracy mark

CA example	
2.3.2	Factors of 28 are 1 ; 2 ; 4 ; <u>14</u> ; 28 Prime factor is 2 ✓
	UNDERLINE ERROR IN LIST
	APPLY CA: 1 mark
	ANSWER ONLY 2 or 7: 1 mark

QUESTION 1

1.1	B	1.2	C	1.3	A	1.4	D	1.5	A	Give one mark for each correct answer. [10]
1.6	B	1.7	A	1.8	C	1.9	D	1.10	C	

QUESTION 2

2.1	2.1.1	$\frac{0}{7} = 0$ ✓ A	Answer: 1 mark	(1)
	2.1.2	$\left(\frac{1}{2}\right)^3 = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$ ✓ A or $\left(\frac{1}{2}\right)^3 = \frac{1^3}{2^3} = \frac{1}{8}$ ✓ A or $\left(\frac{1}{2}\right)^3 = 0,125$ ✓ A	Answer: 1 mark	(1)
2.2		12 000 $= 1,2 \times 10^4$ ✓ A	Answer: 1 mark	(1)

2.3	2.3.1	LCM = 48 ✓ A	Answer: 1 mark	(1)	
	2.3.2	Factors of 28 are 1, 2, 4, 7, 14, 28 ✓ A Prime factors are 2 and 7 ✓ CA	List of factors: 1 mark Answer: 1 mark ANSWER ONLY: 2 marks ANSWER ONLY 2 or 7: 1 mark	(2)	
2.4		Average speed = $\frac{\text{distance}}{\text{time}}$ $= \frac{720 \text{ kilometres}}{6 \text{ hours}}$ ✓ M $= 120 \text{ km/h}$ ✓ A	$\frac{720}{6}$: 1 mark Answer: 1 mark Do not penalize for missing units	(2)	
2.5		-1; -4; -7; -10; -13; -16 ✓ A	-10: 1 mark	(1)	
				[9]	
QUESTION 3					
3.1	3.1.1	$-4 - (-2) + (-3 - 4)$ $= -4 + 2 - 7$ ✓✓ M $= -9$ ✓ CA	+2: 1 mark -7: 1 mark Answer: 1 mark ANSWER ONLY: 3 marks	(3)	
	3.1.2	$3\frac{2}{3} - \frac{7}{12}$ $= \frac{11}{3} - \frac{7}{12}$ ✓ M $= \frac{44}{12} - \frac{7}{12}$ ✓ M or $3 + \frac{2}{3} - \frac{7}{12}$ ✓ M $= \frac{37}{12}$ ✓ CA $= 3\frac{1}{12}$ ✓ CA	$3\frac{2}{3} - \frac{7}{12}$ $= 3 + \frac{2}{3} - \frac{7}{12}$ ✓ M $= 3 + \frac{8}{12} - \frac{7}{12}$ ✓ M $= 3 + \frac{1}{12}$ ✓ CA $= 3\frac{1}{12}$ ✓ CA	$\frac{11}{3}$: 1 mark $\frac{44}{12}$: 1 mark $\frac{37}{12}$: 1 mark Answer: 1 mark ANSWER ONLY: 4 marks	(4)
	3.1.3	$1\frac{2}{3} \times \frac{5}{6}$ $= \frac{5}{3} \times \frac{5}{6}$ ✓ A $= \frac{25}{18}$ ✓ M $= 1\frac{7}{18}$ ✓ CA	$\frac{5}{3}$: 1 mark $\frac{25}{18}$: 1 mark Answer: 1 mark ANSWER ONLY: 3 marks	(3)	
	3.1.4	$\frac{2}{5} \div \frac{1}{2}$ $= \frac{2}{5} \times \frac{2}{1}$ ✓✓ M $= \frac{4}{5}$ ✓ CA	×: 1 mark $\frac{2}{1}$: 1 mark Answer: 1 mark ANSWER ONLY: 3 marks	(3)	

	<p>3.1.5 4% of 500 or $\frac{1}{25} \times 500$</p> <p>$= \frac{1}{25} \times 500$ ✓✓M $= 500 \div 5 \div 5$ ✓✓M</p> <p>$= 20$ ✓CA $= 100 \div 5$</p> <p>$= 20$ ✓CA</p> <p>or</p> <p>4% of 500</p> <p>$= \frac{4}{100} \times 500$ ✓✓M</p> <p>$= \frac{2000}{100}$</p> <p>$= 20$ ✓CA</p>	<p>$\frac{1}{25}$: 1 mark</p> <p>$\times 500$: 1 mark</p> <p>Answer: 1 mark</p> <p>ANSWER ONLY: 3 marks</p>	(3)
3.2	<p>New balance = R2 000 – 3 × R600 ✓M</p> <p>$= R2\ 000 - R1\ 800$ ✓CA</p> <p>$= R200$ ✓CA</p> <p>or</p> <p>Amount withdrawn = R600 × 3 ✓M</p> <p>$= R1\ 800$ ✓CA</p> <p>New balance = R2 000 – R1 800</p> <p>$= R200$ ✓CA</p> <p>or</p> <p>New balance = R2 000 – R600 – R600 – R600 ✓✓M</p> <p>$= R200$ ✓CA</p>	<p>3 × R600: 1 mark</p> <p>R1 800: 1 mark</p> <p>Answer: 1 mark</p> <p>ANSWER ONLY: 3 marks</p>	(3)
3.3	<p>No. left = $\frac{4}{5}$ of 250 ✓✓M or Number eaten = $\frac{1}{5}$ of 250 ✓M</p> <p>$= 200$ ✓CA $= 50$ ✓CA</p> <p>No. left = 250 – 50</p> <p>$= 200$ ✓CA</p>	<p>$\frac{4}{5}$: 2 marks</p> <p>Answer: 1 mark</p> <p>ANSWER ONLY: 3 marks</p>	(3)
3.4	<p>15 % of R10 000 = $\frac{15}{100} \times R10\ 000$ ✓M or $0,15 \times R10\ 000$</p> <p>$= R1\ 500$ ✓CA</p> <p>Interest for 3 years = 3 × R1 500 ✓CA</p> <p>$= R4\ 500$ ✓CA</p> <p>or</p> <p>$SI = \frac{Pni}{100}$</p> <p>$= \frac{R10\ 000 \times 3 \times 15}{100}$ ✓✓✓M</p> <p>$= R4\ 500$ ✓CA</p>	<p>$\frac{15}{100} \times R10\ 000$: 1 mark</p> <p>Answer: 1 mark</p> <p>Multiply by 3: 1 mark</p> <p>Answer: 1 mark</p>	(4)

	or $A = P(1 + ni)$ $= R10\,000(1 + 3 \times \frac{15}{100})$ ✓✓M or $R10\,000(1 + 3 \times 0,15)$ $= R10\,000(1,45)$ $= R14\,500$ ✓CA Interest = $R14\,500 - R10\,000$ $= R4\,500$ ✓CA		
			[26]

QUESTION 4

4.1	4.1.1	<table border="1"> <tr> <td>Figure</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Number of small triangles</td> <td>1</td> <td>4</td> <td>9</td> <td>16</td> <td>25</td> </tr> </table> <div style="text-align: right;"> 16: 1 mark 25: 1 mark (2) </div>	Figure	1	2	3	4	5	Number of small triangles	1	4	9	16	25	
Figure	1	2	3	4	5										
Number of small triangles	1	4	9	16	25										
	4.1.2	$T_n = n^2$ ✓A or $T_n = n \times n$ ✓A <div style="text-align: right;"> n^2: 1 mark (1) </div>													

			[3]
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QUESTION 5

5.1	5.1.1	4 ✓A	4: 1 mark	(1)
	5.1.2	second ✓A or 2nd ✓A	second: 1 mark	(1)
	5.1.3	5 ✓A	5: 1 mark	(1)
	5.1.4	$7x^2 + 5x + 4$ $= 7(-1)^2 + 5(-1) + 4$ $= 7 - 5 + 4$ ✓✓M $= 6$ ✓CA	7: 1 mark -5: 1 mark Answer: 1 mark	(3)
5.2		$2x - 3y + 4 - 3x - y - 2$ $= -x - 4y + 2$ ✓A ✓A ✓A	-x: 1 mark -4y: 1 mark 2: 1 mark	(3)

5.3	5.3.1	$4x + 3 - (3x - 2)$ $= 4x + 3 - 3x + 2 \quad \checkmark\checkmark\mathbf{M}$ $= x + 5$ $\checkmark \quad \checkmark\mathbf{CA}$	$-3x$: 1 mark $+2$: 1 mark x : 1 mark $+5$: 1 mark	(4)
	5.3.2	$\frac{18x^2 - 12x - 6}{6}$ $= \frac{18x^2}{6} - \frac{12x}{6} - \frac{6}{6}$ $= 3x^2 - 2x - 1$ $\checkmark \quad \checkmark \quad \checkmark\mathbf{M}$	$3x^2$: 1 mark $-2x$: 1 mark -1 : 1 mark ANSWER ONLY: 3 marks	(3)
5.4		$2y \times 3y^2 - 14y \times y^2$ $= 6y^3 - 14y^3 \quad \checkmark\checkmark\mathbf{M}$ $= -8y^3 \quad \checkmark\mathbf{CA}$	$6y^3$: 1 mark $14y^3$: 1 mark $-8y^3$: 1 mark	(3)
				[19]
QUESTION 6				
6.1	6.1.1	$x - 10 = 2$ $x = 10 + 2 \quad \checkmark\mathbf{M}$ $x = 12 \quad \checkmark\mathbf{CA}$	$x = 10 + 2$: 1 mark Answer: 1 mark ANSWER ONLY: 2 marks	(2)
	6.1.2	$2x + 1 = 203$ $2x = 203 - 1 \quad \checkmark\mathbf{M}$ $2x = 202 \quad \checkmark\mathbf{CA}$ $x = 101 \quad \checkmark\mathbf{CA}$	Subtracting 1: 1 mark $2x = 202$: 1 mark Answer: 1 mark ANSWER ONLY: 3 marks	(3)
	6.1.3	$x^3 = 64$ $x = \sqrt[3]{64} \quad \checkmark\mathbf{M}$ $x = 4 \quad \checkmark\mathbf{CA}$ or $x = \sqrt[3]{4 \times 4 \times 4} \quad \checkmark\mathbf{M}$ $x = 4 \quad \checkmark\mathbf{CA}$	$x = \sqrt[3]{64}$: 1 mark or $x = \sqrt[3]{4 \times 4 \times 4}$: 1 mark Answer: 1 mark ANSWER ONLY: 2 marks	(2)

6.2	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> x -3 0 $\checkmark\checkmark\mathbf{A}$ $6.2.2$ -1 </div> <div style="border: 1px solid black; padding: 10px; text-align: center;"> $y = -2x + 3$ </div> <div style="text-align: center;"> y $\checkmark\mathbf{A}$ 9 6.2.1 3 5 </div> </div>	<p style="text-align: right;">9: 1 mark (1)</p> <p style="text-align: right;">-1: 2 marks (2)</p>	
			[10]

QUESTION 7

7.1	7.1.1	180° ✓A	Answer: 1 mark (1)					
	7.1.2	60° ✓A	Answer: 1 mark (1)					
	7.1.3	90° ✓A	Answer: 1 mark (1)					
	7.1.4	360° ✓A	Answer: 1 mark (1)					
7.2	$\hat{A} + 70^\circ + 30^\circ = 180^\circ$ ✓M (sum of \angle s of Δ) $\hat{A} + 100^\circ = 180^\circ$ ✓CA $\hat{A} = 180^\circ - 100^\circ$ ✓CA $\hat{A} = 80^\circ$ ✓CA	<p>Correct statement: 1 mark</p> <p>Simplification: 2 marks</p> <p>Answer: 1 mark</p> <p>No marks for reason</p> <p>ANSWER ONLY: 4 marks (4)</p>						
7.3	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Statement</th> <th style="width: 50%;">Reason</th> </tr> </thead> <tbody> <tr> <td>$\hat{A}\hat{C}D = 40^\circ + 80^\circ$ ✓A</td> <td>Exterior \angle of Δ ✓A</td> </tr> <tr> <td>$\therefore \hat{A}\hat{C}D = 120^\circ$ ✓A</td> <td></td> </tr> </tbody> </table>	Statement	Reason	$\hat{A}\hat{C}D = 40^\circ + 80^\circ$ ✓A	Exterior \angle of Δ ✓A	$\therefore \hat{A}\hat{C}D = 120^\circ$ ✓A		<p style="text-align: right;">80°: 1 mark</p> <p style="text-align: right;">Reason: 1 mark</p> <p style="text-align: right;">Answer: 1 mark (3)</p>
Statement	Reason							
$\hat{A}\hat{C}D = 40^\circ + 80^\circ$ ✓A	Exterior \angle of Δ ✓A							
$\therefore \hat{A}\hat{C}D = 120^\circ$ ✓A								
7.4	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Statement</th> <th style="width: 50%;">Reason</th> </tr> </thead> <tbody> <tr> <td>$\hat{B}_1 + 75^\circ + 55^\circ = 180^\circ$ ✓A</td> <td>Sum of \angles on a straight line</td> </tr> <tr> <td>$\therefore \hat{B}_1 = 50^\circ$ ✓A</td> <td></td> </tr> </tbody> </table>	Statement	Reason	$\hat{B}_1 + 75^\circ + 55^\circ = 180^\circ$ ✓A	Sum of \angle s on a straight line	$\therefore \hat{B}_1 = 50^\circ$ ✓A		<p style="text-align: right;">180°: 1 mark</p> <p style="text-align: right;">Answer: 1 mark (2)</p>
Statement	Reason							
$\hat{B}_1 + 75^\circ + 55^\circ = 180^\circ$ ✓A	Sum of \angle s on a straight line							
$\therefore \hat{B}_1 = 50^\circ$ ✓A								

7.5				
	7.5.1	Statement	Reason	
	7.5.1	$x = 62^\circ$ ✓ A	Co-interior \angle s and $AB \parallel CD$	62°: 1 mark (1)
	7.5.2	$y = 62^\circ$ ✓ CA	Vertically opp. \angle s ✓ A	$y = 62^\circ$: 1 mark Reason: 1 mark (2)
7.6				
	7.6.1	Statement	Reason	
	7.6.1	$\hat{H}_1 = 75^\circ$ ✓ A	\angle s opp. equal sides of Δ	75°: 1 mark (1)
	7.6.2	$\hat{G} = \hat{H}_1$	Corresponding \angle s and $EH \parallel FG$ ✓ A	Reason: 1 mark (1)
				[18]

QUESTION 8

8.1	8.1.1	$\Delta ABC \equiv \Delta NLM$ ✓ A	ΔNLM : 1 mark (1)
			Vertices must be in the correct order
	8.1.2	$AB = NL$ or LN ✓ A or $AB = 5\text{ cm}$ ✓ A	NL or 5 cm: 1 mark (1)
	8.1.3	$\hat{C} = \hat{M}$ ✓ A or angle M ✓ A	\hat{M} : 1 mark (1)
8.2	8.2.1	$\hat{C} = \hat{E}$ ✓ A	\hat{E} : 1 mark (1)
	8.2.2	$\hat{D} = \hat{A}$ ✓ A	\hat{A} : 1 mark (1)
	8.2.3	$\Delta ABC \parallel\parallel \Delta DFE$ ✓ A	$\parallel\parallel$: 1 mark (1)
			[6]

QUESTION 9			
9.1	$DF^2 = (24^2 + 7^2) m^2$ ✓ M (Pythagoras) $= (576 + 49) m^2$ ✓ A $= 625 m^2$ ✓ CA $DF = \sqrt{625} m$ $DF = 25 m$ ✓ CA	Correct statement: 1 mark Calculation $576 + 49$: 1 mark Simplification: 1 mark Answer: 1 mark Do not penalize for missing units	(4)
9.2	Area of $\Delta = \frac{1}{2}(b \times h)$ ✓ A or Area of $\Delta = \frac{b \times h}{2}$ ✓ A $= \frac{1}{2}(8 \times 6) m^2$ ✓ M $= \frac{(8 \times 6)}{2} m^2$ ✓ M $= 24 m^2$ ✓ CA $= 24 m^2$ ✓ CA	Correct formula: 1 mark 8×6 : 1 mark Answer: 1 mark Do not penalize for missing units ANSWER ONLY: 3 marks	(3)
9.3	Perimeter of semi-circle $= \frac{\pi d}{2} + AC$ ✓ A $= \frac{3,14 \times 20}{2} + 20 cm$ ✓✓ M $= 51,40 cm$ ✓ CA or $51,4 cm$ or Perimeter of semi-circle $= \frac{2\pi r}{2} + AC$ ✓ A $= \frac{2 \times 3,14 \times 10}{2} + 20 cm$ ✓✓ M $= 51,40 cm$ ✓ CA or $51,4 cm$	Correct formula: 1 mark Substitution $\frac{3,14 \times 20}{2}$: 1 mark Substitution $20 cm$: 1 mark Answer: 1 mark Do not penalize for missing units If π on the calculator, answer = 51,42: 3 marks If $\pi = \frac{22}{7}$, answer = 51,43: 3 marks	(4)
9.4	Volume = Area of base \times Height ✓ A $= 2 \times 1,5 \times 0,5 m^3$ ✓ M $= 1,5 m^3$ ✓ CA or Volume $= \ell \times b \times h$ ✓ A $= 2 \times 1,5 \times 0,5 m^3$ ✓ M $= 1,5 m^3$ ✓ CA	Correct formula: 1 mark Substitution: 1 mark Answer: 1 mark Do not penalize for missing units ANSWER ONLY: 3 marks	(3)
			[14]

QUESTION 10			
10.1	36 50 54 58 58 66 70 78 81 84 92 ✓ M Median mark = 66 ✓ A	Data in correct order: 1 mark Answer: 1 mark ANSWER ONLY: 2 marks	(2)
10.2	Range = 92 – 36 = 56 ✓ A	Answer: 1 mark	(1)
10.3	Modal mark = 58 ✓ A or Mode = 58 ✓ A	Answer: 1 mark	(1)
10.4	Mean mark = $\frac{\text{sum of marks}}{\text{number of learners}}$ $= \frac{727}{11}$ ✓ M $\approx 66,09$ ✓ CA	$\frac{727}{11}$: 1 mark Answer: 1 mark ANSWER ONLY: 2 marks If answer equals 66 or 66,1: 1 mark	(2)
			[6]
QUESTION 11			
Let the numbers be x and $x + 12$ ✓ A The sum = 54 $\Rightarrow x + x + 12 = 54$ ✓ M $2x = 42$ ✓ CA $x = 21$ Larger number = 21 + 12 $= 33$ ✓ CA or Let the numbers be x and $x - 12$ ✓ A The sum = 54 $\Rightarrow x + x - 12 = 54$ ✓ M $2x = 66$ ✓ CA $x = 33$ Larger number = 33 ✓ CA		x and $x + 12$: 1 mark Equation: 1 mark Simplification: 1 mark Answer: 1 mark ANSWER ONLY: 4 marks	(4)
			[4]
TOTAL:			125