



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

MATHEMATICAL LITERACY P2

EXEMPLAR 2007

MEMORANDUM

This memorandum consists of 7 pages.

QUESTION 1		Remarks	Marks
1.1.1	$0,2 \text{ m}^3$ concrete is made from 1 bag cement $\checkmark M$ 5 m^3 concrete is made from : $\frac{5}{0,2} \times 1 = 25$ bags cement $\checkmark A$	1M proportion 1A substitution 1A answer	(3)
1.1.2 (a)	Length = 7 m and breadth = 5 m. $\checkmark M$ Total floor area = $7 \text{ m} \times 5 \text{ m} = 35 \text{ m}^2$ $\checkmark CA$	1A converting to m 1CA area of floor	(2)
1.1.3 (b)	Volume of concrete needed = $35 \text{ m}^2 \times 0,3 \text{ m} = 10,5 \text{ m}^3$ $\checkmark M$ $\checkmark A$	1M substitution 1A solution	(2)
1.2	5% of 10 000 bricks = $0,05 \times 10\ 000$ bricks = 500 bricks $\checkmark M$ $\checkmark A$ Number of bricks to be ordered = $10\ 000 + 500 = 10\ 500$ bricks $\checkmark CA$	1M calculating % 1A answer 1CA final solution	(3)
1.3.1(a)	Length of door = $82 \text{ cm} = 0,82 \text{ m}$ Height of door = $210 \text{ cm} = 2,1 \text{ m}$ $\checkmark M$ Area of door = $0,82 \text{ m} \times 2,1 \text{ m} = 1,722 \text{ m}^2$ Area of two doors = $2 \times 1,722 \text{ m}^2 = 3,444 \text{ m}^2$ $\checkmark CA$	1M converting to m 1CA solution	(2)
1.3.1(b)	Length of large window = $240 \text{ cm} = 2,4 \text{ m}$ $\checkmark M$ Height of large window = $150 \text{ cm} = 1,5 \text{ m}$ Area of large window = $2,4 \text{ m} \times 1,5 \text{ m} = 3,6 \text{ m}^2$ $\checkmark A$ Length of small window = $120 \text{ cm} = 1,2 \text{ m}$ $\checkmark M$ Height of small window = $80 \text{ cm} = 0,8 \text{ m}$ Area of small window = $1,2 \text{ m} \times 0,8 \text{ m} = 0,96 \text{ m}^2$ $\checkmark A$ Total area of windows = $3 \times 3,6 \text{ m}^2 + 2 \times 0,96 \text{ m}^2 = 12,72 \text{ m}^2$ $\checkmark CA$	1M converting to m 1CA solution 1M converting to m 1CA solution 1CA solution	(5)

1.3.1 (c)	<p>Length of east wall = 5 000 mm = 5 m ✓M Height of east wall = 3 m Area of east wall = 5 m x 3 m = 15 m² ✓A</p> <p>Area of west wall = Area of east wall = 15 m² ✓CA</p> <p>Length of south wall = 7 000 mm = 7 m Height of south wall = 3 m Area of south wall (including windows) = 7 m x 3 m = 21 m² ✓A Area of north wall = area of South wall = 21 m²</p> <p>Area to be painted ✓M = 2(15) m² + 2(21) m² - 12,72 m² - 3,444 m² = 55,836 m² ✓CA = 55,84 m²</p>	<p>1 M converting to m 1 A solution</p> <p>1 CA solution</p> <p>1 A solution 1 A solution</p> <p>1 M formula 1 CA solution</p>	(7)
1.3.2	<p>Number of litres of paint for 1 coat = $\frac{55,84 \text{ M}}{3} = 18,61 \ell$ ✓A Total amount of paint = 18,61 ℓ x 2 = 37,23 ℓ = 38 ℓ ✓CA</p>	<p>1 M dividing 1A solution 1CA rounding up</p>	(3)
1.3.3	<p>He needs 38 l of paint. ✓M Option 1: Buy 2 x 20 litres paint and keep the extra 2 litres ✓CA Cost = 2 x 20 litres = 2 x R750 = R1 500 Option 2 3 x 10 litres + 1 x 5 litres + 3 x 1 litre = 3 x R 400 + 1 x R220 + 3 x R60 = R 1 200 + R 220 + R180 = R 1 600</p> <p>Option 1 is better ✓CA</p>	<p>1M 1CA total price 1CA solution</p> <p>1A correct option</p>	(3)

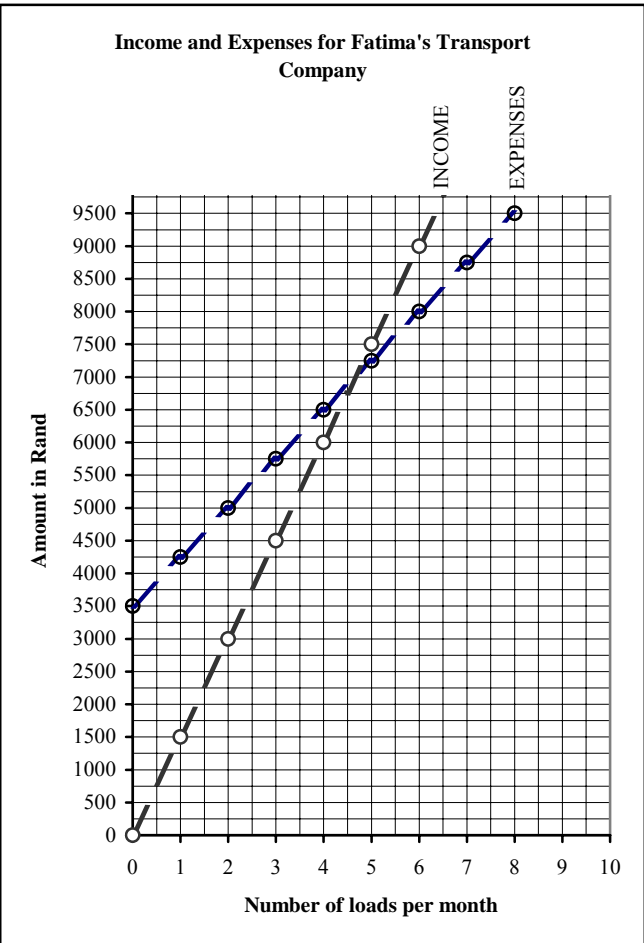
[30]

QUESTION 2			
2.1.1	$1 \times 12 = 12$ $4 \times 3 = 12$ $12 \div 2 = 6$, so $D = 6$ $\checkmark M$ $\checkmark A$ $12 \div 2 = 6$, so $E = 6$ $\checkmark M$ $\checkmark A$	1M 1A value of D 1M 1A value of E	(4)
2.1.2(a)	When working with people, a solid line implies that you can have a fraction of a person, which is impossible. The x-axis shows the number of workers which can only be whole numbers. $\checkmark A$ $\checkmark A$	2A for any mention of a fraction of a person.	(2)
2.1.2(b)	Accept any solution between 2,2 and 2,6 hours $\checkmark A$ $\checkmark A$	2A solution	(2)
2.1.2(c)	24 workers would take : $\frac{12}{24} = 0,5$ Hours $\checkmark M$ $\checkmark A$	1M 1A solution	(2)
2.1.2(d)	Inverse proportion $\checkmark A$	1A	(1)
2.2.1	SUPERCLEAN looks more successful as its graph reaches a higher point than TOPCLEAN graph. $\checkmark A$ $\checkmark R$	1 Answer 1 Reason	(2)
2.2.2(a)	SUPERCLEAN: $R6\ 500 - R5\ 000 = R1\ 500$ $\checkmark A$ $\checkmark M$	1M 1A solution	(2)
2.2.2(b)	TOPCLEAN $R8\ 000 - R5\ 000 = R3\ 000$ $\checkmark M$ $\checkmark A$	1M 1A solution	(2)
2.2.2(c)	John is correct $\checkmark A$ Change in profit for TOPCLEAN is greater $\checkmark R$	1 Answer 1 Reason	(2)
2.2.2(d)	If the same scale is used then the graphs will not be misleading. $\checkmark A$	1 answer	(1)
2.3	Total profit from January to June for TOPCLEAN: $= 5\ 000 + 6\ 000 + 7\ 000 + 8\ 000 + 9\ 000 + 10\ 000$ $\checkmark M$ $= R\ 45\ 000$ $\checkmark A$	1M 1A solution	(2)

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QUESTION 3			
3.1.1	$\begin{aligned} \text{Length in mm} &\approx 37 \text{ mm} = 37 \times 2\,250\,000 \text{ mm} \\ &= 83\,250\,000 \text{ mm} \checkmark \text{CA} \\ \text{Length in km} &= 83,25 \text{ km} \\ &(\text{Accept a length between } 35 \text{ mm and } 39 \text{ mm}) \end{aligned}$	$\checkmark \text{M}$ $\checkmark \text{A}$ 1M length in cm 1A converting 1CA solution in km	(3)
3.1.2	Durban to Howick = 95 km $\checkmark \text{A}$ The scale used is accurate. If it is different accept any feasible explanation – Roads are not in straight lines $\checkmark \text{R}$	1A solution 1reason/explanation	(2)
3.2.1	Durban – Pietermaritzburg – Kokstad = 77 km + 191 km = 268 km $\checkmark \text{A}$ $\checkmark \text{M}$	1M sum of distances 1A	(2)
3.2.2	Durban – Port Shepstone – Kokstad = 117 km + 138 km $\checkmark \text{M}$ = 255 km $\checkmark \text{A}$	1M sum of distances 1A	(2)
3.2.3	Durban – Port Shepstone – Kokstad $\checkmark \text{A}$	1A	(1)
3.3	Any feasible explanation. The roads could be in better condition, $\checkmark \text{R}$ There could be detours on the shorter road. They could be stopping over in a particular town on the longer route.	1A reason	(1)
3.4.1	Expenses = R325 400 + R100 000 + R50 000 $\checkmark \text{A}$ = R475 400 Profit = Income – Expenses $\checkmark \text{M}$ = R682 500 – R475 400 = R207 100 $\checkmark \text{CA}$	1A adding expenses 1M substitution 1CA solution	(3)
3.4.2 (a)	$10,5\% \text{ of } R207\,100 = 0,105 \times R207\,100 = R21\,745,50$ $\text{So the profit for February} = R207\,100 + R21\,745,50 = R228\,845,50 \checkmark \text{CA}$ $\text{So Income} - \text{Expenses} = R228\,845,50 \checkmark \text{M}$ $\text{Income} = R228\,845,50 + R475\,400,00 = R704\,245,50 \checkmark \text{CA}$	1M percentage 1A calculation 1CA profit 1M substitution 1 CA solution	(5)
3.4.2 (b)	$\text{Profit Margin} = \frac{\text{Income} - \text{Expenses}}{\text{Expenses}} \times 100\% \checkmark \text{M}$ $= \frac{228\,845,50}{475\,400} \times 100\% \checkmark \text{A}$ $= 48,137 \dots \% \checkmark \text{CA}$ $\approx 48,14 \%$	1M formula 1A substitution 1CA correct answer	(3)

3.5.1	$I = n \times 1\,500$ ✓A	1A formula	(1)
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3.5.2	<p style="text-align: center;">Income and Expenses for Fatima's Transport Company</p> 	<p>✓✓ y-intercepts ✓✓✓ for plotting correctly</p>	(5)
3.5.3 (a)	At the break-even point both the expenses and the income are approximately R7 000. ✓CA	1CA from graph drawn	(1)
3.5.3 (b)	The profit for six loads = R9 000 – R8 000 ✓A = R1 000 ✓CA	1A from graph drawn or from the table	(2)

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QUESTION 4			
4.1	It was only in Gauteng that the percentage of males was greater than the percentage females. ✓A ✓A	2A solution	(2)
4.2	Looking at the graph, we can see that the largest difference occurred in the Eastern Cape and in Limpopo. Eastern Cape = $53,9\% - 46,1\% = 7,8\%$ ✓M ✓A Limpopo = $54,3\% - 45,7\% = 8,6\%$ M So the greatest difference occurs in Limpopo ✓A	1M subtraction 1A solution 1M comparing 1A solution	(4)
4.3	Gauteng: ✓M $51\% \text{ of } 7\,348\,423 = 3\,746\,995,73 \approx 3\,746\,996 \text{ males}$ ✓A KwaZulu-Natal: ✓M ✓A $46,9\% \text{ of } 8\,417\,021 = 3\,947\,582,85 \approx 3\,947\,583 \text{ males}$ Difference = $3\,947\,583 - 3\,746\,996 = 200\,587 \text{ males}$ ✓A	1M calculating % 1A solution 1M calculating % 1A solution 1A conclusion	(5)
4.4	Number of males in Northern Cape: $= 49,1\% \text{ of } 840\,321$ $= 412\,597,611$ $\approx 412\,598$ ✓A Percentage of South African males living in the Northern Cape: $= \frac{42\,598}{40\,583\,573} \times 100\% = 1,016\%$ ✓M ✓CA $\approx 1,02\%$	1A cal. Males I NC 1M calculating % 1A solution	(3)
4.5.1	P (Mpumalanga) $= \frac{2\,800\,711}{40\,583\,573}$ ✓ M $= 0,069 \dots$ ✓A $\approx 0,07$	1M calculating P 1A solution	(2)
4.5.2	Number not in the Western Cape $= 40\,583\,573 - 3\,956\,875$ $= 36\,626\,698$ ✓M P (not in WC) = $\frac{36\,626\,698}{40\,583\,573} = 0,902 \approx 0,90$ ✓A	1M calculating P 1A solution	(2)

[18]**TOTAL: 100**

ASSESSMENT FRAMEWORK
Mathematical Literacy Grade 11
Exemplar Paper 2

Q	Context detail	Item	Learning Outcomes				Taxonomy Level				Sub-tot	Total
			LO 1	LO 2	LO 3	LO 4	L1	L2 20%	L3 40%	L4 40%		
1	Jabulani's house	1.1.1	3					1	1	1	3	30
		1.1.2a			2			2			2	
		1.1.2b			2			2			2	
		1.2	3						3		3	
		1.3.1a			2			2			2	
		1.3.1b			5				5		5	
		1.3.1c			7					7	7	
		1.3.2	3						3		3	
		1.3.3	3							3	3	
2	SUPERCLEAN and TOPCLEAN	2.1.1		4					4		4	22
		2.1.2		2						2	2	
		2.1.3		2				2			2	
		2.1.4		2				2			2	
		2.1.5		1				1			1	
		2.2.1				2			2		2	
		2.2.2a		2					2		2	
		2.2.2b		2					2		2	
		2.2.2c				2				2	2	
		2.2.2d				1				1	1	
		2.2.3				2				2	2	
3	Fathima's transport company	3.1.1			3				3		3	30
		3.1.2			2			1		1	2	
		3.2.1			2				2		2	
		3.2.2			2					2	2	
		3.2.3		1						1	1	
		3.3										
		3.3.1	3						3		3	
		3.3.2a	5							5	5	
		3.3.2b	3							3	3	
		3.4.1		1					1		1	
		3.4.2		5					5		5	
		3.4.3a		1					1		1	
		3.4.3b		2						2	2	
4	Census Gender	4.1				2		2			2	18
		4.2				4		4			4	
		4.3	2			3				5	5	
		4.4	1			2			3		3	
		4.5.1a				2			2		2	
		4.5.1b				2			2		2	
			26	25	27	22	0	20	43	37	30	100