education

Department:
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GRADE 12

MATHEMATICAL LITERACY P1

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MEMORANDUM

MARKS: 150

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG	Reading from a table/Reading from a graph
SF	Correct substitution in a formula
O	Opinion/Example
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off

This memorandum consists of 14 pages.

QUESTION 1 [35]			
Ques	Solution	Explanation	AS
1.1.1	$5 \times (17 - 3) + \sqrt{121}$ $\quad\quad \checkmark A \quad\quad \checkmark A$ $= 5 \times 14 + 11$ $= 70 + 11$ $= 81 \quad \checkmark CA$	1A Simplifying brackets 1A Finding square root 1CA Solution (3)	12.1.1
1.1.2	$\dfrac{33}{125} = 0{,}264 \quad \checkmark A$	1A Solution (1)	12.1.1
1.1.3	$\dfrac{7\frac{1}{2}}{100} \times$ R650 000 $\quad \checkmark MA$ $=$ R48 750 $\quad \checkmark CA$	1MA Expressing as % 1CA Solution (2)	12.1.1
1.1.4	If 15 trips cost R110,10, then 1 trip will cost $\dfrac{\text{R110,10}}{15} \quad \checkmark M$ $\quad\quad\quad \checkmark CA$ $= \text{R7,34}$	1M Method 1CA Solution (2)	12.1.1
1.1.5	2 000 : 1 500 $\quad \checkmark A$ $= 4 : 3 \quad \checkmark CA$ **OR** 1 500 m = 1,5 km $\quad \checkmark A$ $= 4 : 3 \; \checkmark CA$	1A Writing as a ratio 1CA Simplified ratio **OR** 1A Conversion 1CA Simplified ratio (2)	12.3.2 12.1.1
1.1.6	R1,00 = €0,11 R10 500 = 10 500 × €0,11 $\quad \checkmark M$ $= €1\ 155 \quad \checkmark CA$	1M Method 1CA Solution (2)	12.1.3

Ques	Solution	Explanation	AS
1.2.1	Number employed $= 190\,000 - 55\,000$ $\checkmark$M $= 135\,000$ $\checkmark$CA police officers	1M Subtraction 1CA Solution (2)	12.1.1
1.2.2	Percentage increase $= \dfrac{55\,000}{190\,000 - 55\,000} \times 100\%$ $\checkmark$SF $= \dfrac{55\,000}{135\,000} \times 100\%$ $\checkmark$A $= 40{,}7407\ldots$ $\checkmark$A $\approx 40{,}7\,\%$ $\checkmark$CA	1SF Substitution 1A Subtraction 1A Simplification 1CA Rounding off (4)	12.2.1
1.3	Number $= \dfrac{120\,\text{m}}{2{,}5\,\text{m}}$ $\checkmark$M $= 48$ $\checkmark$A	1M Division 1A Simplification (2)	12.3.1
1.4	Profit margin $= \dfrac{\text{R}650 - \text{R}350}{\text{R}650} \times 100\%$ $\checkmark$SF $= \dfrac{\text{R}300}{\text{R}650} \times 100\%$ $= 46{,}153\,8\ldots\%$ $\checkmark$A $\approx 46{,}15\%$ $\checkmark$R	1SF Substitution 1A Subtraction 1A Simplification 1R Rounding correctly (4)	12.2.1
1.5	Total outer surface area $= 2 \times (40\,\text{cm} \times 30\,\text{cm} + 40\,\text{cm} \times 50\,\text{cm}$ $\checkmark$SF $\quad + 30\,\text{cm} \times 50\,\text{cm})$ $= 2 \times (4\,700\,\text{cm}^2)$ $\checkmark$CA $= 9\,400\,\text{cm}^2$ $\checkmark$CA	1SF Substitution into formula 1CA Simplification 1CA Surface area (3)	12.3.1
1.6.1 (a)	$\checkmark\checkmark$RG 10 workers	2RG Reading from graph (2)	12.2.3
1.6.1 (b)	$\checkmark\checkmark$RG 4 workers	2RG Reading from graph (2)	12.2.3

1.6.2	1 hr 15 min **OR** $1\frac{1}{4}$ hours **OR** ✓✓RG 75 minutes	2RG Reading from graph (2)	12.2.3
1.6.3	Total time = 5 hours + 2 × (15 minutes) + 30 min = 6 hours ✓A Finishing time = 08:00 + 6 hours = 14:00 (or 2 p.m.) ✓CA	1A Total number of hours 1CA Finishing time (2)	12.3.1

QUESTION 2	[25]		
Ques	**Solution**	**Explanation**	**AS**
2.1.1	IsiZulu ✓RG	2RG Reading from graph (1)	12.4.4
2.1.2	IsiNdebele; Siswati; Tshivenda and Xitsonga ✓ ✓RG	2RG Reading from graph (any two, 1 mark) (2)	12.4.4
2.1.3	Siswati $= 100\% - (14,3 + 8,6 + 1,5 + 17,6 + 23,8 + 9,4 + 7,9 + 8,2 + 1,7 + 4,4\ )\%$ ✓RG $= 100\% - 97,4\%$ $= 2,6\%$ ✓CA	1RG Reading from graph 1CA Solution (2)	12.4.4
2.1.4	✓RG ✓M English $= 8,6\% \times 47\ 900\ 000$ $= 4\ 119\ 400$ ✓CA	1RG Reading from graph 1M Method 1CA Solution (3)	12.2.1 12.4.4
2.1.5	✓RG IsiXhosa $= 17,6\%$ of 100 000 $= 0,176 \times 100\ 000$ ✓M $= 17\ 600$ ✓CA	1 RG Reading from graph 1M Method 1CA Solution (3)	12.4.4
2.2.1	D = 136 cm✓A	1A Diameter (1)	12.3.1
2.2.2	P = 4 × length ✓M $= 4 \times 136$ cm $= 544$ cm ✓CA	1M Method 1CA Solution (2)	12.3.1
2.2.3	A $= \pi \times (radius)^2$ $= 3,14 \times (68\ cm)^2$ ✓SF $= 14\ 519,36\ cm^2$✓CA ✓A	1SF Substitution in formula 1CA Solution 1A Correct units (3)	12.3.1

Please turn over

Ques	Solution	Explanation	AS
2.2.4	Circumference = $2 \times \pi \times$ radius $= 2 \times 3{,}14 \times 68$ cm$\checkmark$SF $= 427{,}04$ cm$\checkmark$A	 1SF Substitution in formula 1A Correct units (2)	12.3.1
2.2.5	Cost $= 425 \times 54$c $\checkmark$M $= 22\,950$c $\checkmark$A $=$ R229,50 $\checkmark$CA **OR** $\checkmark$M $\checkmark$C Cost $= 425 \times$ R0,54 $=$ R229,50 $\checkmark$CA	 1M Multiplication 1A Cost 1CA Conversion to rand **OR** 1M Multiplication 1C Conversion to rand 1CA Cost (3)	12.1.1
2.2.6	$\checkmark$SF Mass $= 7\,259{,}68$ cm^3 $\times 2{,}5$ g/cm^3 $= 18\,149{,}2$ g $\checkmark$A $\checkmark$M $\approx 18{,}15$ kg	1SF Substitution 1A Solution 1M Correct unit/rounding (3)	12.3.1

QUESTION 3	[22]			
Ques	**Solution**		**Explanation**	**AS**
3.1.1(a)	Senegal ✓RT		1RT Reading from graph (1)	12.4.4
3.1.1(b)	Mali ✓RT		1RT Reading from graph (2)	12.4.4
3.1.2	4 (Four) ✓RT		1RT Reading from graph (1)	12.4.4
3.1.3	72 : 9 ✓RT = 8 : 1 ✓A		1RT Reading from table 1A Simplified ratio (2)	12.1.1 12.4.4
3.1.4	Percentage resulting in death $= \dfrac{661}{43\ 279} \times 100\%$ ✓M $= 1,527 \ldots \%$ ✓CA $\approx 1,53\ \%$ ✓R		1M Method 1CA Solution 1R Rounding off (3)	12.1.1 12.4.4
3.2.1	5 000 cm³ ✓A		1A Conversion (1)	12.3.2
3.2.2	1 ℓ water needs 5 drops of Jik ✓M 16 ℓ water need 16 × 5 drops = 80 drops ✓A **OR** 1ℓ : 5 drops = 16ℓ : x drops ✓M $x = 16 \times 5$ drops = 80 drops ✓A		1M Calculating number of drops 1A Number of drops of Jik **OR** 1M Setting up the proportion 1A Number of drops of Jik (2)	12.3.1 12.1.1

Ques	Solution	Explanation	AS
3.2.3	$3{,}8\,\ell = 1$ gallon $1\,\ell = \dfrac{1}{3{,}8}$ gallon ✓A $5\,\ell = \dfrac{5}{3{,}8}$ gallons ✓CA $= 1{,}315\ldots$ gallons ✓R $\approx 1{,}3$ gallons **OR** $3{,}8\,\ell : 1$ gallon $1\,\ell : \dfrac{1}{38}$ gallon ✓A $5\,\ell : \dfrac{5}{3{,}8}$ gallons ✓CA $5\,\ell : 1{,}3$ gallons ✓R	1A Proportion 1CA Solution 1R Rounding off **OR** 1A Proportion 1CA Solution 1R Rounding off (3)	12.3.2
3.2.4	$V = \pi \times (\text{radius})^2 \times \text{height}$ $= 3{,}14 \times (20\ \text{cm})^2 \times 60\ \text{cm}$ ✓SF $= 75\,360\ \text{cm}^3$ ✓CA ✓A	1SF Substitution in formula 1CA Solution 1A Correct unit (3)	12.3.1
3.3.1	Ratio $= 8 : \dfrac{1}{2}$ ✓A $= 16 : 1$ ✓CA	1A Writing the ratio 1CA Simplifying the ratio (2)	12.1.1
3.3.2	$6 \times \dfrac{1}{2}$ tsp ✓A $= 3$ tsp ✓CA	1A Method 1CA Solution (2)	12.1.1

QUESTION 4 [30]			
Ques	**Solution**	**Explanation**	**AS**
4.1.1	Mode = 8 days ✓A	1A Correct mode (1)	12.4.3
4.1.2	Range = $(10 - 0)$ days ✓A = 10 days ✓CA	1A Method 1CA Solution (2)	12.4.3
4.1.3	Median = $\dfrac{4+5}{2}$ days ✓M = $\dfrac{9}{2}$ days = 4,5 days ✓CA	1M Method 1CA Solution (2)	12.4.3
4.1.4	Mean ✓M = $\dfrac{0+0+1+2+3+4+5+6+7+8+8+10}{12}$ days = $\dfrac{54}{12}$ ✓CA days = 4,5 days ≈ 5 days ✓A	1M Method 1CA Correct addition 1A Solution (3)	12.4.3 12.1.2
4.1.5	✓A Ratio = 4 : 8 ✓M = 1 : 2 ✓CA	1A Number of managers 1M Finding ratio 1CA Simplified ratio (3)	12.1.1
4.2.1(a)	R0 **OR** nothing ✓A	1A Wage for 0 hours (1)	12.2.1
4.2.1(b)	B = R100 + R30 × 4 ✓SF = R220 ✓CA	1SF Substitution in formula 1CA Value of B (2)	12.2.1
4.2.1(c)	R280 = R100 + R30 × C ✓SF R180 = R30 × C 6 = C ✓CA	1SF Substitution into formula 1CA Value of C (2)	12.2.1

Ques	Solution	Explanation	AS
4.2.2	**DAILY WAGES EARNED BY THE TWO GENERAL ASSISTANTS**	3A 3 points plotted (0 ; 100), (2 ; 160), (6 ; 280) or (7 ; 310) 1A Joining point by line and labelling (4)	12.2.2

Ques	Solution	Explanation	AS
4.2.3(a)	7 ✓CA	1CA Reading from drawn graph or from table (1)	12.2.3
4.2.3(b)	Lithe Fitters ✓CA	1CA Correct company (1)	12.2.3
4.2.3(c)	Difference in wages $\qquad$ ✓RG = R310 – R130 $\qquad$ ✓CA = R180	1RG Reading from graph or table 1CA Solution (2)	12.2.3
4.3.1	$A = \dfrac{1}{2} \times 60$ cm $\times (210 + 130)$ cm ✓SF ✓SF $= 30$ cm $\times (340)$ cm ✓CA $= 10\ 200$ cm² ✓CA $\qquad$ ✓M	2SF Substitution 1 CA Addition 1CA Solution (4)	12.3.1
4.3.2	Length = 210 cm + 72,1 cm + 130 cm + 72,1 cm $= 484,2$ cm ✓CA	1M Method 1 CA Solution (2)	12.3.1

Please turn over

QUESTION 5   **[23]**

Ques	Solution	Explanation	AS
5.1.1	C3 ✓RT	1RT Reading a grid (1)	12.3.4
5.1.2	NW ✓✓A	2A Correct direction (2)	12.3.4
5.1.3	From Injoloba High School • Turn left into Oakleigh Drive ✓A • Cross Morling Street ✓A • Turn left into Harvard Street • Proceed along Braemar Crescent; Devonshire Avenue; Umgeni Ave ✓CA • Turn right into Amber Avenue ✓CA • Turn left into Howick High School	1A Crossing Morling St. 1A Turning left into Harvard St. 1CA Turning into Amber Ave. 1CA Finishing (4)	12.3.4
5.1.4	13 cm ✓✓A	2A Correct distance in cm (2)	12.3.2
5.1.5	Distance = 45 km/h × $\frac{1}{10}$ h ✓SF = 4,5 km ✓A ✓A	1SF Substitution in formula 1A Solution 1A Correct units (3)	12.2.1
5.2.1 (a)	A = 5 ✓A	1A Solution (1)	12.2.3
5.2.1 (b)	B = (0 × 3) + 2 ✓SF = 2 ✓CA	1SF Substitution in formula 1CA Solution (2)	12.2.1
5.2.2 (a)	Leopard's final points = (2 × 3) + 2 ✓SF = 8 ✓CA	1SF Substitution into formula 1CA Solution (2)	12.2.1
5.2.2 (b)	Panthers' final points = (2 × 3) + 3 ✓SF = 9 ✓CA	1SF Substitution into formula 1CA Solution (2)	12.2.1

Ques	Solution	Explanation	AS
5.3.1	P(strawberry-flavoured sweet) = $\dfrac{44}{144}$ ✓M ✓M $= \dfrac{11}{36}$ or $0{,}305\ldots$ ✓CA	1M Method numerator 1M Method denominator 1CA Solution (3)	12.4.5
5.3.2	P(pear-flavoured sweet) = 0 **OR** impossible ✓A	1A Solution (1)	12.4.5

QUESTION 6	**[15]**		
Ques	**Solution**	**Explanation**	**AS**
6.1	✓A The number of people in Gauteng using electricity for lighting ✓A	1A Correct description 1A Correct province (2)	12.1.1

6.2.1	A = Total ✓M/A
	
	    = 2 703 733 + 10 232 227 + 1 003 041 + 4 595 534
	    + 2 941 481 + 8 145 829 + 4 379 207 + 3 345 526
	    + 521 524 2
	
	    = 42 561 820 ✓CA
		1M/A Method
		
		1CA Simplification
		
		(2)
			12.1.1
			12.4.4

6.2.2	B = Percentage people using electricity for lighting in SA
	        ✓M/A
	    = $\dfrac{38\ 569\ 410}{48\ 502\ 063} \times \dfrac{100\%}{1}$ ✓M/A
	
	    = 79,5% ✓CA
		2M/A Method
		
		1CA Simplification
		(3)
			12.1.1
			12.4.4

6.2.3	C = Number of people in Gauteng using electricity for lighting
	    ✓M/A
	    = 83,5% × 10 451 713 ✓M/A
	
	    = 8 727 180 ✓CA
		2M/A Method
		
		1CA Simplification
		(3)
			12.1.1
			12.4.4

6.2.4	D = Percentage of people in KwaZulu-Natal having access to piped water
	        ✓M/A
	    = $\dfrac{8\ 145\ 829}{10\ 259\ 230} \times \dfrac{100\%}{1}$
	        ✓M/A
	    = 79,4% ✓CA
		2M/A Method
		
		1CA Simplification
		
		(3)
			12.1.1
			12.4.4

6.3	Eastern Cape ✓RT✓RT	2RT Reading from table (2)	12.4.4

TOTAL: 150