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PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

CAPRICORN SOUTH DISTRICT

MATHEMATICAL LITERACY

GRADE 12

PRE-JUNE EXAMINATION

MEMORANDUM 2023

SYMBOL/SIMBOOL	EXPLANATION/VERDUIDELIKING
M	Method/METODE
MA	Method with Accuracy/metode met akkuraatheid
CA	Consistent accuracy/konstante akkuraatheid
RCA	Rounding consistent Accuracy/af rond konstante akkuraatheid
A	Accuracy/akkuraatheid
O	Opinion/Explanation/ verduideliking
C	Conversion/omskakeling
S	Simplification/vereenvoudiging
RT/RG/RD/RM	Reading from table/Reading from graph/Reading from diagram/Reading from map/ lees van grafiek ,diagram,kaart
F	Choosing the correct formula/korrekte formule
SF	Correct substitution in a formula/korrekte substitusie in formule
J	Justification/regverdiging
P	Penalty e.g. for no units, incorrect roundin ⁿ etc./pennaliseer vir eenhede,af rond ens.
Re	Reason/rede
Ro	Rounding /af rond
NPU/NPR	No Penalty for units/ No Penalty for rounding.
AO	Answer only ,full marks/antwoord alleen vol punte.

QUESTION 1 [30 marks]		Answer Only Full Marks
Ques	Solution	Explanation
1.1.		
1.1.1	<p>2 cm of the radius of the semi-circle is overlapped by the triangle, so the part of the radius not overlapped is $(7 - 2) \text{ cm} = 5 \text{ cm}$. ✓ This means there is a 5 cm space between the end of the triangle and the end of the semi-circle.</p> $h + 5 = 13 \quad \checkmark$ $\therefore h = 13 - 5$ $\therefore h = 8 \text{ cm} \quad \checkmark$	3A correct answer (3)
1.1.2	$\text{Area} = \frac{1}{2}(\text{base} \times \text{height})$ $= \frac{1}{2}((7 + 7) \times 8) \quad \checkmark \checkmark$ $= 56 \text{ cm}^2 \quad \checkmark$	3A correct answer (3)
1.1.3	<p>Area = area of semi-circle – area of overlap</p> $= \frac{1}{2} \pi \times r^2 - \frac{1}{2} (b \times h)$ $= \frac{1}{2} \pi \times 7^2 \quad \checkmark - \frac{1}{2} (3 \times 2) \quad \checkmark$ $= 73,97 \text{ cm}^2 \quad \checkmark$ $= 74 \text{ cm}^2 \quad \checkmark$	4A correct answer (4)
1.1.4	<p>Area = area of large circle – blue area – red area</p> $= [\pi \times 7^2 - 56 - 74] \text{ cm}^2 \quad \checkmark \checkmark$ $= 184,16 \text{ cm}^2 \quad \checkmark$ $= 184 \text{ cm}^2 \quad \checkmark$	4A correct answer (4)
1.1.5	<p>Paint required = $184 \text{ cm}^2 \times 5 \text{ ml per cm}^2 \quad \checkmark$</p> $= 920 \text{ ml} \quad \checkmark$	2A correct answer (2)
1.1.6	<p>Percentage used = $\frac{920 \text{ ml}}{2\,000 \text{ ml}} \times 100 \quad \checkmark$</p> $= 46\% \quad \checkmark$	2A correct answer (2)

1.2		
1.2.1	Johannesburg ✓✓	2RT correct answer (2)
1.2.2	Only (a) ✓✓	2RT correct answer (2)
1.2.3	Approximately 10 cm ✓✓	2RT correct answer (2)
1.2.4	3 cm = 400 km ∴ 1 cm $\frac{400}{3} = 133,33$ km ✓✓	2RT correct answer (2)
1.2.5	Can make one stop at any of the following and proceed to Johannesburg: Sun City, Bloemfontein, Kimberley, George, Port Elizabeth or East London. ✓✓ & ✓✓ (Accept any two routes.)	4RT correct answer (4)
		[30]
QUESTION 2 [21 marks]		
	Solution	explanation
2.1		
a)	First two members will need an area of 2 m ² ✓ There are four other members who need 4 × 0,7 m ² ✓ = 2,8 m ² Total area = 2 m ² + 2,8 m ² = 4,8 m ² ✓ Length = $\frac{\text{area}}{\text{breadth}}$ ✓ = $\frac{4,8 \text{ m}^2}{1,5 \text{ m}}$ = 3,2 m ✓✓	6A correct answer (6)
b)	Volume of a cylinder = $\pi \times r^2 \times h$ $150 \text{ l} = 3,142 \times r^2 \times 1,2 \text{ m}$ ✓ ✓ $150\,000 \text{ cm}^3 = 3,142 \times r^2 \times 120 \text{ cm}$ ✓ $r^2 = \frac{150\,000}{3,142 \times 120} \text{ cm}^2$ ✓ = 398,089172 cm ² $r = 19,9521 \text{ cm}$ ✓ = 20 cm ✓	6A correct answer (6)

2.2	<p>Discount = $35\% \times R24\,500$ ✓ = R8 575 ✓</p> <p>Cost of supplying and installing the geyser = $R24\,500 - R8\,575$ ✓ = R15 925</p> <p>Monthly cost of heating water = $0,45 \times R1\,250$ ✓ = R562,50 ✓</p> <p>Number of months = $\frac{15\,925}{562,50}$ ✓ = 28,31111111 = 28 ✓</p> <p>His statement is invalid. ✓</p> <p>OR</p> <p>Discount = $35\% \times R24\,500$ ✓ = R8 575 ✓</p> <p>Cost of supplying and installing the geyser = $R24\,500 - R8\,575$ ✓ = R15 925 ✓</p> <p>Monthly cost of heating water = $0,45 \times R1\,250$ ✓ = R562,50 ✓</p> <p>Savings R562,50 per month for 2 years Total savings = $R562,50 \times 24$ months ✓ = R13 500 ✓</p> <p>His statement is invalid. ✓</p>	<p>9CA Correct answer (9)</p>
		[21]

QUESTION 3 [14 marks]		
Ques	Solution	Explanation
3.1		
3.1	Diameter is a line segment from one side of the circumference passing the centre of the round table to the other side of the circumference ✓✓	20 Explanation (2)
3.2	<p>Area of a rectangle = length \times breadth ✓</p> <p>= 23 m \times 18m ✓</p> <p>= 414 ✓ m² ✓</p> <p>Number of round table = $\frac{414 \text{ m}^2}{9 \text{ m}^2}$ ✓</p> <p>= 46 ✓</p> <p>Elvis Louw's statement is invalid. ✓</p>	7A correct answer (7)
3.3	<p>$9 \text{ m}^2 = 3 \text{ m} \times 3 \text{ m}$</p> <p>$\therefore$ areas are 3 m across ✓</p> <p>Width needed for table and chairs</p> <p>= 1,8 m + 2 \times 0,45 m ✓</p> <p>= 2,7 m ✓</p> <p>Walking space = 3 m - 2,7 m ✓</p> <p>= 0,3 m</p> <p>= 30 cm ✓</p>	5A correct answer (5)
		[14]

QUESTION 4 [27 marks]		
Ques	Solution	Explanation
4.1		
4.1.1	C2 OR 2C ✓✓	2RT (2)
4.1.2	From Kokstad College turn right/NE ✓ into Elliot Street, continue at Barclay Road turn right/SE. ✓ Kokstad turn by Club will be on the left.	2A correct answer (2)
4.1.3	South east/ North West ✓✓	2RT correct answer (2)
4.1.4	1 cm represent 20 000 cm Therefore, 5 cm would represent $5 \times 20\,000\text{ cm}$ ✓✓ $= 100\,000\text{ cm}$ ✓ $= 1\,000\text{ m}$ ✓	4A correct answer (4)
4.2		
4.2.1	71 seats ✓✓	2RT (2)
4.2.2	26 : 80 ✓✓ 13 : 40 ✓	3A correct answer (3)
4.2.3	From 2K or K2, you turn left towards the Aisle ✓, then turn left until J10 or 10J. ✓ Turn right towards B14 or 14B ✓ and then turn left at the end of the Gallery/Kitchen ✓, move straight towards 38B on your right hand side. ✓	1CA correct answer (5)
4.2.4	Probability (did not have an aisle seat) $= \frac{9}{26} \times 100\%$ ✓✓ $= 34,6\%$ OR 35% ✓	3A correct answer (3)
4.2.5	It helps to give the passenger more privacy and comfort. ✓✓	2O opinion (2)
		[25]