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GRADE 12

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MATHEMATICAL LITERACY P2 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
F	Choosing the correct formula
SF	Substitution in a formula
J	Justification
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding Off/Reason

This memorandum consists of 9 pages.

QUESTION 1

LO 1 AS 12.1.1	1.1	1.1.1	Amount for deposit = $0,15 \times 5\,989 \checkmark$ = R 898,35 $\checkmark$	1:M 1:A
LO 1 AS 12.1.1		1.1.2	Monthly payments = $\frac{7\,508,70}{30} \checkmark$ = R 250,29 $\checkmark$	1:M 1:A
LO 1 AS 12.1.1		1.1.3	Total Amount = Deposit + Total of 30 months = R 898,35 + (R250,29 x 30) $\checkmark$ = R 898,35 + R 7 508,70 = R 8 407,05 $\checkmark$	1: M 1: CA
LO 1 AS 12.1.1		1.1.4	$A = R\,7\,508,70$ $P = R\,5\,989 - R\,898,35$ = R 5 090,65 $\checkmark$ $n = 30 \text{ months} = 2,5 \text{ years} \checkmark$ $i = ?$ $1+ni = \frac{A}{P}$ $1 + 2,5i = \frac{7\,508,70}{5\,090,65} \checkmark$ $1 + 2,5i = 1,474998281 \checkmark$ $2,5i = 0,474998281 \checkmark$ $i = 0,1899993125 \checkmark$ $i = 19\% \checkmark$	1:CA: Calculating P- value 1:A 2,5 years 1:SF 1:S ($\frac{A}{P}$) 1:S (-1) 1:S ($\div 2,5$) 1:CA (x100)
LO 1 AS 12.1.1		1.1.5	$A = ?$ $P = R\,5\,989$ $n = 2,5 \times 2$ = 5 $\checkmark$ $i = 11,25 / 100$ = 0,1125 / 2 = 0,05625 $\checkmark$ $A = P(1+i)^n$ = $5\,989(1+0,05625)^5 \checkmark$ = $5\,989(1,05625)^5$ = $5\,989(1,31472103) \checkmark$ = R 7 873,86 $\checkmark$	1:A Calculating n 1:A Calculating i 1:SF 1:CA for Simplifying 1:CA
LO 1 AS 12.1.2		1.1.6	Option 2: $\checkmark$ It will cost R 533,19 $\checkmark$ less than Option 1	1:J (Option) 1:R

LO 3 AS 12.3.3	1.2	1.2.1	Actual length in cm = $40 \times 2,5$ cm ✓ = 100 cm ✓	1:M (x2,5) 1:A
LO 3 AS 12.3.1		1.2.2	Area of television in m ² = 97 cm $\times$ $58,7$ cm ✓ $\frac{5\,693,9}{100}$ cm ² ✓ = 10 000 ✓ = 0,57 m ² ✓ OR = $\frac{97}{100}$ cm $\times$ $\frac{58,7}{100}$ cm ✓ = 0,97 m ✓ $\times$ 0,587 m ✓ = 0,57 m ² ✓	1:SF (Correct values) 1:A 1:C 1:A
LO 3 AS 12.3.1		1.2.3	Length = 97 cm + 10 cm + 10 cm = 117 cm ✓ Width = $58,7$ cm + 10 cm + 10 cm = 78,7 cm ✓ Area for mounting = 117 cm $\times$ $78,7$ cm $\frac{9\,207,9}{100}$ cm ² ✓ = 10 000 = 0,92 m ² ✓ OR = $\frac{117}{100}$ cm $\times$ $\frac{78,7}{100}$ cm ✓ = 1,17 m $\times$ 0,787 m = 0,92 m ² ✓ Area of wall = 0,8 m ² Area on the wall will be too small for the television to be mounted. ✓	1:A (Calculating length) 1:A (Calculating width) 1:C 1:CA 1:C 1:A 1:J
LO 3 AS 12.3.2	1.3	Isidingo	= 30 minutes – (45 seconds $\times$ 5) = 30 – (0,75 minutes ✓ $\times$ 5) = 30 – 3,75 ✓ = 26,25 minutes viewing time OR 26 min 15 sec ✓ “Sewende Laan” = 30 minutes – (0,5 $\times$ 4) = 30 – 2 ✓ = 28 minutes viewing time ✓ “Sewende Laan” will give maximum viewing time. ✓	1:C (convert 45s to min) 1:M 1:A 1:M 1:A 1:CA

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QUESTION 2

LO 4 AS 12.4.1	2.1	2.1.1	Number of learners interviewed = $6+10+8+14+2$ ✓ = 40 learners ✓	1:RG 1:A
LO 4 AS 12.4.3		2.1.2	% learners interviewed = $\frac{40}{1030} \times 100$ ✓ = 3,88 % ✓ = 3,9 % ✓	1:M 1:A 1:CA (1dec. place)
LO 4 AS 12.4.4		2.1.3	No ✓ He only conducted the survey in his class ✓ OR It is not representative of the whole school	1:A 1:R
LO 4 AS 12.4.4		2.1.4	No ✓ Favourite chocolate in my class ✓	1:A 1:A (subs. school with class)
LO 4 AS 12.4.4		2.1.5	It must be representative of all the learners in the school across the different grades, race, age, gender. ✓✓	2:R
LO 4 AS 12.4.3		2.1.6	40% learners interviewed = $\frac{40}{100} \times 1030$ ✓ OR = $0,4 \times 1030$ ✓ = 412 learners ✓	1:M 1:A
LO 2 AS 12.2.1	2.2	2.2.1	2008 ✓ The graph from 2007 to 2008 is decreasing ✓	1:RG 1:R
LO 2 AS 12.2.1		2.2.2	2010 – 2011 ✓ The gradient is the steepest ✓	1:RG 1:R
LO 2 AS 12.2.3		2.2.3	Price in 2008 = $\frac{R3,70}{1,057}$ ✓✓ = R3,50 ✓ OR Price in 2008 = $\frac{R3,70}{105,7} \times 100$ ✓✓ = R3,50 ✓	1: RG (correct %) 1:M 1:A
LO 2 AS 12.2.1		2.2.4	% change in 2011 = $\frac{R4,50 - R3,99}{R3,99} \times 100$ ✓ = $\frac{0,51}{3,99} \times 100$ ✓ = 12,8% ✓	2:MA 1:A

LO 3
AS
12.3.2

2.3 2.3.1

$$\begin{aligned}
 128 \text{ mm} &= 12,8 \text{ cm} \checkmark \\
 \text{Volume} &= l \times b \times h \\
 &= 12,8 \text{ cm} \times 2,5 \text{ cm} \times 1,5 \text{ cm} \checkmark \\
 &= 48 \text{ cm}^3 \checkmark
 \end{aligned}$$

1:C (convert
mm to cm)
1:SF(correct
values)
1:A (in cm^3)

OR

$$\begin{aligned}
 2,5 \text{ cm} &= 25 \text{ mm} \quad ; \quad 1,5 \text{ cm} = 15 \text{ mm} \\
 \text{Volume} &= l \times b \times h \\
 &= 128 \text{ mm} \times 25 \text{ mm} \times 15 \text{ mm} \checkmark \\
 &= 48\,000 \text{ mm}^3 / 1\,000 \checkmark \\
 &= 48 \text{ cm}^3 \checkmark
 \end{aligned}$$

1:SF (correct
values)
1:C(convert
 mm^3 to cm^3)
1:A(in cm^3)

LO 3
AS
12.3.1

2.3.2

$$\begin{aligned}
 \text{Surface area} &= 2 \times \text{Area of base} + \text{perimeter of base} \times \text{height} \\
 &= 2(12,8 \text{ cm} \times 2,5 \text{ cm}) + 2(12,8 \text{ cm} + 2,5 \text{ cm}) \times 1,5 \text{ cm} \checkmark \\
 &= 64 \text{ cm}^2 \checkmark + 30,6 \text{ cm} \checkmark \times 1,5 \text{ cm} \\
 &= 64 \text{ cm}^2 + 45,9 \text{ cm}^2 \checkmark \\
 &= 109,9 \text{ cm}^2 \checkmark
 \end{aligned}$$

1:SF(correct
values)
2:S (area of
base and
perimeter)
1:A (x 30,6
and 45,9)
1:CA

LO 3
AS
12.3.1

2.3.3

$$\begin{aligned}
 \text{Surface Area of wrapping} &= \text{SA of bar} + (12,5\% \text{ of bar}) \\
 &= 109,9 \text{ cm}^2 + (0,125 \times 109,9 \text{ cm}^2 \checkmark) \\
 &= 109,9 \text{ cm}^2 + 13,7375 \text{ cm}^2 \checkmark \\
 &= 123,6375 \text{ cm}^2 \checkmark \\
 &= 123,64 \text{ cm}^2 \checkmark
 \end{aligned}$$

OR

$$\begin{aligned}
 &= 1,125 \checkmark \times 109,9 \text{ cm}^2 \checkmark \\
 &= 123,6375 \text{ cm}^2 \checkmark \\
 &= 123,64 \text{ cm}^2 \checkmark
 \end{aligned}$$

1:M (12,5%
of 109,9) CA
1:A (13,7375)
1:MA (add)
1:R (round to
123,64)

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QUESTION 3

LO 1
AS
12.1.1

3.1 3.1.1 (a) R 600 000 ✓

1:RT

LO 1
AS
12.1.1

(b) Transfer Duty
 = R 12 000 + 5% of the amount above R 1 000 000 ✓
 = 12 000 + 0,05 x 200 000 ✓✓
 = 12 000 + 10 000 ✓
 = R 22 000 ✓

1:F(correct formula)
 1:A(amount > 1 mil)
 1:A(5%)
 1:M(add)
 1:A

LO 1
AS
12.1.1

3.1.2 (a) Monthly repayments
 = Bond amount in 1 000 x factor
 = 1 200 ✓ x 9 ✓✓
 = R 10 800 ✓

OR

Monthly repayments = $\frac{\text{Bond Amount}}{1\,000} \times \text{factor}$
 = $\frac{1\,200\,000}{1\,000} \times 9$
 = 1 200 ✓ x 9 ✓✓
 = R 10 800 ✓

1:A(amount in 1 000)
 2:RT(correct factor)
 1:CA

LO 1
AS
12.1.3

(b) Monthly salary = $\frac{R\,450\,000}{12}$ ✓
 = R 37 500 ✓
 30% of monthly salary = 37 500 x 0,3 ✓
 R 11 250 ✓

1:M (/12)
 1:A
 2:MA (0,3)

OR

30% of salary = 450 000 x 0,3 ✓
 = $\frac{135\,000}{12}$ ✓
 = R 11 250 ✓

Yes she will qualify ✓

1:J

LO 1
AS
12.1.1

(c) Monthly repayments
 = Bond amount in 1 000 x factor
 = 1 200 ✓ x 8,39 ✓✓
 = R 10 068 ✓

OR

Monthly repayments = $\frac{\text{Bond Amount}}{1\,000} \times \text{factor}$
 = $\frac{1\,200\,000}{1\,000} \times 8,39$
 = 1 200 ✓ x 8,39 ✓✓
 = R 10 068 ✓

1:A(amount in 1 000)
 2:RT(correct factor)
 1:A

The monthly repayment is R 732 (R 10 800 – R 10 068) less than the 20 year period ✓

OR

The longer the period, the less the monthly repayment ✓

1:R

LO 1 AS 12.1.1		(d) Final Amount = monthly repayment x number of payments = 10 800 x 240 ✓✓ = R 2 592 000 ✓	1:SF 1:C (convert 20yrs to months) 1:CA
LO 1 AS 12.1.1		(e) Interest = Final Amount – Loan Amount = R 2 592 000 – R 1 200 000 ✓ = R 1 392 000 ✓	1:M 1:A
LO 2 AS 12.2.3	3.2 3.2.1	Interest ✓ Interest is calculated on a new principal amount every month ✓✓ OR Interest is compounded monthly ✓✓ (Accept any other logical explanation)	1:A 2:R
LO 2 AS 12.2.3	3.2.2	Loan ✓ Loan amount is decreasing ✓✓ OR Interest is calculated on a smaller amount ✓✓ (Accept any other logical explanation)	1:A 2:R
LO 2 AS 12.2.1	3.2.3	Accept 2022 – 2023 ✓✓	2:A
LO 2 AS 12.2.3	3.2.4	With a home loan compounded interest (monthly) apply, while with vehicle finance simple interest apply ✓✓	2:A

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QUESTION 4LO 2
AS
12.2.1

4.1 4.1.1 R 3 000 ✓✓

OR

$$\text{Total Cost} = 300 \times 10 = \text{R } 3\,000 \quad \checkmark\checkmark$$

OR

$$= 150 \times 20 = \text{R } 3\,000 \quad \checkmark\checkmark$$

OR

$$= 100 \times 30 = \text{R } 3\,000 \quad \checkmark\checkmark$$

OR

$$= 75 \times 40 = \text{R } 3\,000 \quad \checkmark\checkmark$$

OR

$$= 60 \times 50 = \text{R } 3\,000 \quad \checkmark\checkmark$$

2:A

LO 2
AS
12.2.14.1.2 $A \checkmark = p \checkmark n \checkmark$ **OR**

$$A \checkmark = p \checkmark \times n \checkmark$$
 OR

$$3000 \checkmark = p \checkmark n \checkmark$$
 OR

$$n \checkmark = A \checkmark / p \checkmark$$
 OR

$$p \checkmark = A \checkmark / n \checkmark$$

3:F

LO 2
AS
12.2.1

4.1.3 A:

$$A = pn$$

$$3000 = p \times 20$$

$$p = 3000 / 20 \quad \checkmark$$

$$= \text{R } 150 \quad \checkmark$$

1:M

1:A

B:

$$A = pn$$

$$3000 = 75n$$

$$n = 3000 / 75 \quad \checkmark$$

$$= 40 \text{ children} \quad \checkmark$$

1:M

1:A

LO 2
AS
12.2.14.1.4 $3\,000 = pn$

$$3\,000 = p \times 45$$

$$p = 3\,000 / 45 \quad \checkmark$$

$$= \text{R } 66,67 \quad \checkmark$$

1:M

1:A

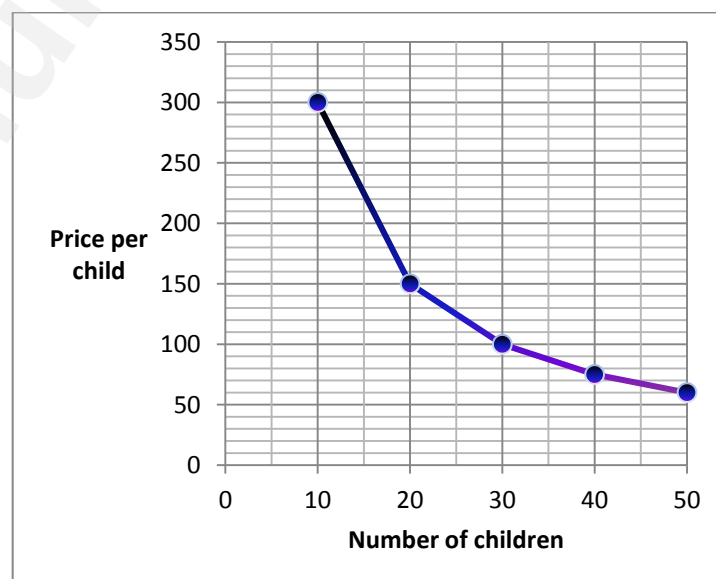
LO 2
AS
12.2.3

4.1.5 As the number of children increase, ✓ the price per child decrease ✓

2:A

LO 2
AS
12.2.2

4.1.6



5: 1 mark for each point plotted correctly

LO 3
AS
12.3.1

4.2 4.2.1

$$\begin{aligned}\text{Diameter} &= 2,7 \text{ cm} \times 2 \\ &= 5,4 \text{ cm} \checkmark \\ \text{Length of toy} &= 5,4 \text{ cm} - 0,2 \text{ cm} \checkmark \checkmark \\ &= 5,2 \text{ cm} \checkmark\end{aligned}$$

1:A(diameter)
1:A(2mm to
cm
1:M
1:A

LO 3
AS
12.3.1

4.2.2

$$\begin{aligned}\text{Volume of inner ball} &= \left(\frac{4}{3}\right)\pi r^3 \\ &= \left(\frac{4}{3}\right) \times 3,14 \times (2,7 \text{ cm})^3 \checkmark \\ &= \left(\frac{4}{3}\right) \times 3,14 \times 19,683 \text{ cm}^3 \checkmark \\ &= 82,41 \text{ cm}^3 \checkmark\end{aligned}$$

1:SF(correct
values)
1:S(2,7³)
1:A(in cm³)

LO 4
AS
12.4.5

4.3 4.3.1

	2 years	3 years	4 years	5 years	Total
Boys	5	3	6✓	8✓	22
Girls	4✓	8	5	6	23✓
Total	9	11✓	11	14	45

5:A
1 mark for
each missing
value

LO 4
AS
12.4.1

4.3.2

$$\begin{aligned}\text{Average age of children} &= \frac{(9 \times 2) + (11 \times 3) + (11 \times 4) + (14 \times 5)}{45} \checkmark \checkmark \\ &= \frac{18 + 33 + 44 + 70}{45} \\ &= \frac{165}{45} \checkmark \\ &= 3,67 \text{ years} \checkmark\end{aligned}$$

2:M
1:S
1:A

LO 4
AS
12.4.6

4.3.3

$$\begin{aligned}\text{(a) P(girl aged 5 years)} &= \frac{6}{45} \checkmark \checkmark \\ &= 0,133 \checkmark \text{ OR } 13,3\% \checkmark\end{aligned}$$

1:A
(numerator)
1:A
(denominator)
1:A

LO 4
AS
12.4.6

$$\begin{aligned}\text{(b) P(boy be invited)} &= \frac{22}{45} \checkmark \checkmark \\ &= 0,489 \checkmark \text{ OR } 48,9\% \checkmark\end{aligned}$$

1:A
(numerator)
1:A
(denominator)
1:A

LO 4
AS
12.4.6

$$\begin{aligned}\text{(c) P(boy or girl aged 2 years be invited)} &= \frac{9}{45} \checkmark \checkmark \\ &= 0,2 \checkmark \text{ OR } 20\% \checkmark\end{aligned}$$

1:A
(numerator)
1:A
(denominator)
1:A

[43]**TOTAL:****150**