



Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2011

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/RM	Reading from a table/Reading from a graph/Read from map
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 7 pages.

QUESTION 1

1.1

LO 3
ASS
12.3.1

$$1.1.1 \quad A = \pi r^2 \\ = 3,14 \times 5^2 \checkmark (\text{radius}) \checkmark \\ = 78,5 \text{ cm}^2 \checkmark$$

1:Radius
1: SF
1: A

LO 3
ASS
12.3.1

$$1.1.2 \quad A \text{ to be used for text} = A \text{ of rectangle} - A \text{ of circle} \\ = (l \times b) - \pi r^2 \\ = (21 \text{ cm} \times 14,9 \text{ cm}) \checkmark - 78,5 \text{ cm}^2 \checkmark \\ = 312,9 \text{ cm}^2 - 78,5 \text{ cm}^2 \checkmark \\ = 234,4 \text{ cm}^2 \checkmark$$

1:F
1:CA
1:M
1:A

LO 1
ASS
12.1.1

$$1.1.3 \quad \text{Cost of 1 invitation card} = (234,4 \text{ cm}^2 \times 0,06) \checkmark + 0,45 \\ = 14,06 + 0,45 \checkmark \\ = R14,51 \checkmark$$

1:M
1:M
1:A

LO 1
ASS
12.1.2

$$1.1.4 \quad \text{No of invitation cards} = \frac{2\,000}{14,51} \checkmark \\ = 137,8... \checkmark \\ = 137 \text{ invitation cards} \checkmark$$

1:M

1:A
1:R

No, only 137 guests will receive invitation cards $\checkmark \checkmark$

2:J

OR

No, there will be a shortage of 13 invitation cards $\checkmark \checkmark$

1.2

LO 2
ASS
12.2.1

$$1.2.1 \quad C \checkmark = 3\,000 \checkmark + 145n \checkmark$$

3:F

LO 2
ASS
12.2.1

$$1.2.2 \quad \underline{\text{Option 1}} \\ \text{Cost} = 3\,000 + 145(150) \checkmark \\ = 3\,000 + 21\,750 \checkmark \\ = R24\,750 \checkmark$$

1:SF
1:MA
1:A

Option 2

$$\text{Cost} = 190(150) \checkmark \\ = R28\,500 \checkmark$$

1:M
1:A

Option 1 will be R 3 750 cheaper $\checkmark \checkmark$

2:J

1.3

LO 4
ASS
12.4.5

1.3.1



(7)

LO 4
ASS
12.4.51.3.2 $P(\text{White and Gold}) = \frac{1}{2} \times \frac{1}{3} \checkmark$
 $= \frac{1}{6} \checkmark$

2:M

1:A

[35]

QUESTION 2

2.1

LO 3
ASS
12.3.4

2.1.1 Plettenberg Bay ✓✓

2:A

LO 3
ASS
12.3.4

2.1.2 84 km ✓✓

2:A

LO 3
ASS
12.3.4

2.1.3 1✓

1:A

LO 3
ASS
12.3.2

2.1.4

$$D = S \times T$$

$$757 \text{ km} = 100 \text{ km/h} \times T \checkmark$$

$$T = \frac{757 \text{ km}}{100 \text{ km/h}} \checkmark$$

$$= 7,57 \text{ h} \checkmark$$

$$= 7\text{h}34 \text{ min} \checkmark$$

1: SF

1:M

1:A

1:C

LO 3
ASS
12.3.22.1.5 $10\text{h}00 + 7\text{h}34 + 1\text{h}15\text{min} \checkmark \checkmark$
 $= 18\text{h}49 \text{ min} \checkmark$

2:M/CA

1:A

2.2

LO 2
ASS
12.2.32.2.1 $45 \times 9,63 \checkmark \checkmark$
 $= \text{R } 433,35 \checkmark$

1:RT

1:M

1A

LO 3
ASS
12.3.4

2.2.2 (a)

$$45 \times 10,2 \checkmark$$

$$= 459 \text{ km} \checkmark$$

$$\text{Riversdale} \checkmark \checkmark$$

1:M

1:A

2:A

LO 2 ASS 12.2.3	(b)	No ✓ R9,80 ✓ Riversdale is in the interior (inland town) ✓	1:O 1:RT 1:J	
LO 1 ASS 12.1.1	(c)	$(45 \times 9,80) - (45 \times 9,63)$ ✓ $= R\ 441 - R\ 433,35$ ✓✓ $= R\ 7,65$ ✓ OR $R\ 9,80 - R\ 9,63$ ✓ $= R\ 0,17 \times 45$ ✓✓ $= R\ 7,65$ ✓	1:M 2MA 1:A	
LO 1 ASS 12.1.1	2.2.3	$\frac{9,92 - 9,63}{9,63} \times 100$ ✓ $= \underline{0,29}$ ✓ $\frac{9,63}{9,63} \times 100$ ✓ $= 3,01\%$ ✓ (Accept 3%)	1:SF 1:A 1:M 1:A	
2.3 LO 3 ASS 12.3.1	2.3.1	8 cm ✓✓	2:A	
LO 3 ASS 12.3.3	2.3.2	8 cm : 3,2 m ✓ ✓ $= 8\text{ cm} : 320\text{ cm}$ ✓ $= 1:40$ ✓	OR 8 cm : 3,2 m ✓✓ $= 0,08\text{ m} : 3,2\text{ m}$ ✓ $= 1:40$ ✓	2:M 1:C 1:A
LO 3 ASS 12.3.3	2.3.3	Every cm measured on the drawing represents 40 cm in reality ✓✓ OR 1 cm on the drawing = 40 cm in reality ✓✓	2:R	
2.4 LO 4 ASS 12.4.4	2.4.1	(a) 26 letters – 5 vowels ✓ = 21 ✓	1:M 1:A	
LO 4 ASS 12.4.5	(b)	$\frac{1}{21}$ ✓ $\frac{1}{21}$ ✓ = 0,048 ✓ OR 4,8% ✓	2:M 1:A	
LO 4 ASS 12.4.4	2.4.2	(a) 10 x 10 x 10 ✓✓ = 1 000 ✓	2:M 1:A	
LO 4 ASS 12.4.5	(b)	$\frac{1}{10}$ ✓ $\frac{1}{10}$ ✓ = 0,1 ✓ OR 10% ✓	2:M 1:A	

QUESTION 3

3.1

LO 1
ASS
12.1.2

$$3.1.1 \quad (a) \quad (6 \times 0) + (6 \times 8,32) + (6 \times 10,82) \checkmark \quad 1: \text{SF}$$

$$= 0 + 49,92 + 64,92 \checkmark \quad 1:A$$

$$= R114,84 \checkmark \quad 1:A$$

LO 1
ASS
12.1.2

$$(b) \quad R203,52 - (6 \times 0) - (6 \times 8,32) - (8 \times 10,82) \checkmark \quad 1: \text{M}$$

$$= R203,52 - 0 - 49,92 - 86,56$$

$$= \underline{67,04}$$

$$\quad 16,76 \checkmark \checkmark \quad 2: \text{MA}$$

$$= 4 \checkmark \quad 1:A$$

$$\text{Kiloliters used} = 6+6+8+4$$

$$= 24 \text{ k}\ell \checkmark$$

OR

$$(6 \times 0) + (6 \times 8,32) + (8 \times R10,82) \checkmark \quad 1: \text{M}$$

$$= R0 + R49,92 + R86,56$$

$$= R136,48 \text{ for } 20 \text{ k}\ell$$

$$\text{Therefore } R203,52 - R136,48$$

$$= \underline{67,04} \quad 2: \text{MA}$$

$$\quad 16,76 \checkmark \checkmark \quad 1:A$$

$$= 4 \checkmark$$

$$\text{Total usage} = 20 \text{ k}\ell + 4 \text{ k}\ell$$

$$= 24 \text{ k}\ell \checkmark \quad 1:A$$

LO 1
ASS
12.1.2

$$3.1.2 \quad (6 \times 0) + (6 \times 8,32) + (6 \times 9,58) \checkmark \quad 1: \text{SF}$$

$$= 0 + 49,92 + 57,48$$

$$= R107,40 \checkmark \quad 1:A$$

$$\text{Saving} = R114,84 - R107,40 \checkmark \quad 1: \text{M}$$

$$= R7,44 \checkmark \quad 1:A$$

3.2

LO 3
ASS
12.3.2

$$3.2.1 \quad V = \pi r^2 h$$

$$= 3,14 \times 55 \text{ cm}^2 \times 120 \text{ cm} \checkmark \checkmark \quad 1: \text{C}$$

$$= \underline{1\,139\,820 \text{ cm}^3} \checkmark \quad 1: \text{SF}$$

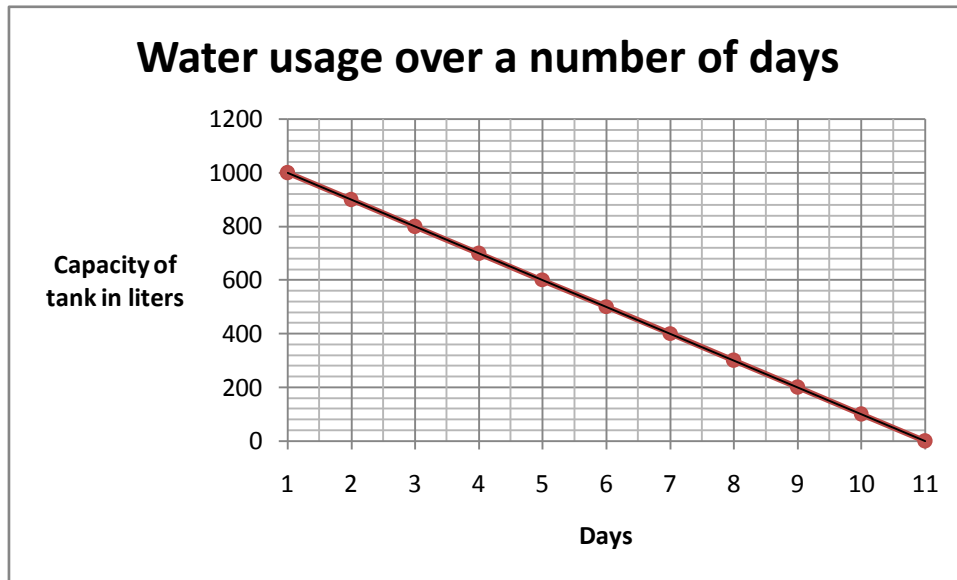
$$\quad 1\,000 \quad 1: \text{M}$$

$$= \underline{1\,139,82 \ell} \checkmark \quad 1: \text{C}$$

$$\quad 1\,000 \checkmark \quad 1: \text{C}$$

$$= 1,14 \text{ k}\ell \checkmark \quad 1: \text{A}$$

3.3

LO 2
ASS
12.2.2

1:X-axis,
label
1:Y-axis,
label
1:heading
1:(1:1000)
1:(11;0)
3:any 3
points
correctly
plotted
2:correct
graph

3.4

LO 4
ASS
12.4.3

$$\begin{aligned}
 3.4.1 \quad \text{Mean} &= \frac{16+19+17+15+16+18+19+20+20+17+18+25+17+16}{14} \checkmark \\
 &= \frac{253}{14} \checkmark \\
 &= 18,07 \text{ k}\ell \checkmark
 \end{aligned}$$

1:M

1:MA

1:A

LO 4
ASS
12.4.3

$$3.4.2 \quad 15 ; 16 ; 16 ; 16 ; 17 ; 17 ; 17 ; 18 ; 18 ; 19 ; 19 ; 20 ; 20 ; 25 \checkmark$$

$$\begin{aligned}
 \text{Median} &= \frac{17 + 18}{2} \checkmark \\
 &= \frac{35}{2} \\
 &= 17,5 \text{ k}\ell \checkmark
 \end{aligned}$$

2:MA

1:A

LO 4
ASS
12.4.3

$$\begin{aligned}
 3.4.3 \quad \text{Range} &= 25 - 15 \checkmark \\
 &= 10 \text{ k}\ell \checkmark
 \end{aligned}$$

1:M

1:A

LO 4
ASS
12.4.6

$$\begin{aligned}
 3.4.4 \quad \text{Range} &\checkmark \\
 \text{The value of 25 is distorting the data.} &\checkmark\checkmark
 \end{aligned}$$

1:A

2:R

[39]

QUESTION 4**4.1**LO 1
ASS
12.1.3**4.1.1**

$$\begin{aligned}\text{Factory: VAT to SARS} &= 120 \times 0,14 \checkmark \\ &= 16,8 \times 500 \checkmark \\ &= R8\,400 \checkmark\end{aligned}$$

OR

$$\begin{aligned}&= 120 \times 500 \checkmark \\ &= 60\,000 \times 0,14 \checkmark \\ &= R8\,400 \checkmark\end{aligned}$$

1:M

1:MA

1:A

LO 1
ASS
12.1.3**4.1.2**

$$\begin{aligned}\text{VAT received from customers} &= \frac{190}{1,14} \checkmark \\ &= 166,67 \checkmark \\ &= 190 - 166,67 \\ &= 23,33 \times 500 \checkmark \\ &= R11\,665 \checkmark\end{aligned}$$

1:M

1:A

1:M

1:M

1:A

LO 1
ASS
12.1.3**4.1.3**

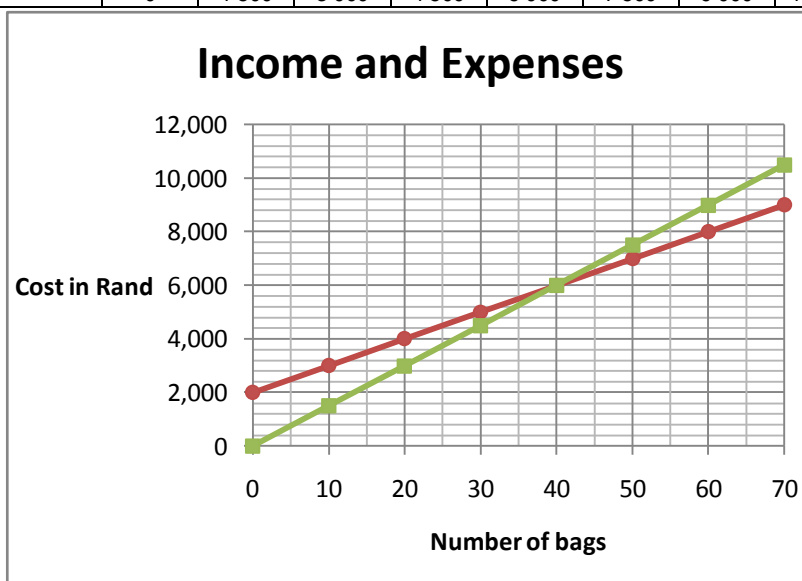
$$\begin{aligned}\text{Ms Rennet VAT to SARS} &= R11\,665 - R8\,400 \checkmark \\ &= R3\,265 \checkmark\end{aligned}$$

1:M

1:CA

4.2LO 2
ASS
12.2.2**4.2.1 and 4.2.2**

Number of bags	0	10	20	30	40	50	60	70
Expenses	2 000	3 000	4 000	5 000	6 000	7 000	8 000	9 000
Income	0	1 500	3 000	4 500	6 000	7 500	9 000	10 500

Expenses

1:0;2000

2:any 2

points

correct

1:label

Income

1:0,0

2: any 2

points

correct

1:Label

2:40;6000

4.3LO 2
ASS
12.2.3**4.3.1** 40 ✓✓

2:RG

LO 2
ASS
12.2.3**4.3.2** Income is less than expenses ✓✓

2:O

4.4LU 4
ASS
12.4.6**Graph B** ✓**X-axis starting at Day 5** ✓✓

1:A

2:R

TOTAL:**[27]****150**