

Province of the **EASTERN CAPE** EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2012

MATHEMATICAL LITERACY P2 MEMORANDUM

MARKS: 100

Symbol	Explanation
Μ	Method
MA	Method with accuracy
CA	Consistent accuracy
А	Accuracy
С	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
Р	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding Off/Reason

This memorandum consists of 8 pages.

QUE	STION	1		
			I	
1.1 LO3 AS 11.3.2	1.1.1	1 $tsp = 5 ml$ OR $tsp = {}^{15}/_5 \checkmark$ 1 $tbsp = 15 ml$ $= 3 tsp \times 2 \checkmark$ 15 $ml = 3 tsp \checkmark$ $= 6 tsp \checkmark$ Therefore 30 $ml = 3 tsp \times 2 \checkmark$		1:C (<i>mℓ</i> to <i>tsp</i>) 1:M (x2)
		$= 6 tsp \checkmark$	(3)	1:A
LO3 AS 11.3.2	1.1.2	1 can = 4 people 20 people \checkmark 4 people = 5 \checkmark Therefore to serve 20 people, 5 cans of naartjies will be used.	(2)	1:M (20/4) 1:A
LO3	4.4.0			
AS 11.3.2	1.1.3	 °F = °C x 1,8 + 32 = 220° x 1,8 + 32 √ = 396° √ + 32 = 428° √ 400° ≠ 430 ° No, Gretchen did not set the oven's temperature in °C Correctly. √ 	(4)	1:SF 1:S 1:A 1:R
1.2 LO3 AS 11.3.2		1 <i>lb</i> (pound) 2 <i>oz</i> (ounce) Ostrich Fillet 1 <i>lb</i> = 0,45359 <i>kg</i> 1 <i>oz</i> = 0,0625 <i>lb</i> 0,0625 <i>lb</i> x 0,45359 = 0,028349375 <i>kg</i> \checkmark x 2 \checkmark = 0,05669875 <i>kg</i> Kilograms of ostrich fillet = 1 <i>lb</i> + 2 <i>oz</i> = 0,45359 <i>kg</i> + 0,05669875 <i>kg</i> \checkmark = 0,51028875 <i>kg</i> \checkmark = 0,5 <i>kg</i> \checkmark	(5)	1:C (<i>lb</i> to <i>kg</i>) 1: M (x2) 1:M 1:A 1:R
1.3 LO3 AS 11.3.1		Volume = $\pi r^2 h$ = 3,14 x 11 cm x 11 cm x 9 cm $\checkmark \checkmark$ = 3 419,46 cm ³ \checkmark If 1 000 cm ³ = 1/ then 3419,46 cm ³ / _{1 000} = 3,4 $\ell \checkmark$ Yes, the casserole dish will be big enough to transfer the cooked meal. \checkmark	(5)	1:A (radius) 1:SF 1:A 1:C (cm ³ to <i>I</i>) 1:J
1.4				
LO1 AS 11.1.1	1.4.1	$500 \text{ g} = \frac{1}{2} \text{ kg}$ $\frac{1}{2} \times \text{R67} = \text{R33,50} \checkmark$	(1)	1:A

LO1 AS 11.1.2	1.4.2	VAT amount = (R33,50 + R12,59) ✓ x 0,14 = R46,09 x 0,14 ✓ = R6,45 ✓	(3)	1:M (correct values) 1:M (x 14%) 1:A
LO1 AS 11.1.3	1.4.3	Although naartjies are fruit, in this case it processed (canned), while the oranges are fresh produce. $\checkmark \checkmark$ OR No VAT is paid on fresh produce such as the oranges, but when it is canned VAT will be paid. $\checkmark \checkmark$ (Accept any other relevant explanation.)	(2)	2:A
LO1 AS 11.1.3	1.4.4	As the 1 and 2 cent coins are no more in circulation, the final amount is rounded to the nearest 5 cent. $\checkmark\checkmark$ (Accept any other relevant explanation.)	(2)	2:A
LO1 AS 11.1.3	1.4.5	No change is due to Gretchen as she paid only the due amount. $\checkmark\checkmark$	(2)	2:A
LO1 AS 11.1.1	1.4.6	Afternoon ✓ 16:42 ✓	(2) [31]	2:A

QUESTION 2 2.1 L01 Value of deposit = R250 000 x 0,16 \checkmark 2.1.1 1:M AS 11.1.1 = R40 000 √ (2) 1:A LO 1 *P* = R250 000 – R40 000 2.1.2 1:A (P-AS 11.1.1 = R210 000 √ value) n = 72 / 12= 6 years \checkmark 1:A (ni = 9.5 / 100value) = 0,095A = P(1 + ni)= 210 000 (1 + 6 x 0,095) ✓ $= 210\ 000\ (1+0.57)$ 1:SF = 210 000 (1,57) √ 1:S 1:A = R329 700 ✓ (5) L01 2.1.3 I = A - P1:M AS 11.1.1 = R329 700 - R210 000 √ 1:CA = R119 700 ✓ (2)2.2 LO2 2.2.1 $A = P(1-i)^n$ 1:SF AS 11.2.1 $= 250\ 000\ (1-0,2)^2$ 1:S $= 250\ 00\ (0,8)^2$ 1:A = 250 000 (0,64) √ = R160 000 √ OR $A = P(1-i)^n$ $= 200\ 000\ (1-0.2)^{1}$ $= 200\ 000\ (0,8)^{1}$ = R160 000 √ (3)L01 2.2.2 1 mark AS 11.2.2 Value of car over years for each 250 000 for (0,250 200 000 000) Value in Rand 120 000 100 000 (1,200 000) (2, 160)000) 50 0 00 (3,128 000) 0 (4,102 0 1 2 3 4 5 400) Years (5)

LO1 AS 11.2.3	2.2.3	Indirect or Inverse proportion ✓ As the years increase, the values of the car decrease. ✓	(2)	1:A 1:R
2.3 LO4 AS 11.4.5		P(silver) = ${}^{3}/_{14} \checkmark \checkmark \mathbf{OR} \ 0,214 \checkmark \checkmark \mathbf{OR} \ 21,4\% \checkmark \checkmark$	(2)	1:A (numerator) 1:A (denominator)
			[21]	

QUES	STION	3		
3.1				
LO4 AS	3.1.1	5 ✓		1:A
11.4.5		Teams cannot play against themselves ✓	(2)	1:R
LO4	3.1.2	10 ✓ ✓		
AS 11.4.5	5.1.2		(2)	2:A
LO4 AS	3.1.3	4 🗸 🗸	(0)	0.4
11.4.5			(2)	2:A
LO4	3.1.4	10 ✓ ✓		
AS 11.4.5	0.1.1		(2)	2:A
LO4	0.4.5			4.0
AS 11.4.5	3.1.5	$1/_{4} \checkmark \checkmark \qquad OR \qquad 0,25 \checkmark \checkmark \qquad OR \qquad 25\% \checkmark \checkmark$		1:A (numerator) 1:A
			(2)	(denominator)
LO4	0.4.0			4.0
AS 11.4.5	3.1.6	$^{1}/_{16}$ \checkmark OR 0,063 \checkmark OR 6,3% \checkmark		1:A
11.4.5				(numerator) 1:A
			(2)	(denominator)
			(2)	(denominator)
3.2				
AS	3.2.1	(a) $s = 5t + 2c + 3p \sqrt{\sqrt{2}}$	(3)	3:F
11.2.1			(3)	5.1
LO2		(b) $s = 5t + 2c + 3p$		
AS 11.2.1		$= (5 \times 6) + (2 \times 5) + (3 \times 3) \checkmark$		1:SF (correct
		= 30 + 10 + 9		values)
		= 49 🗸	(2)	1:CA
1.02	0.0.0			
LO2 AS 11.2.1	3.2.2	For 1 penalty ✓	(1)	1:A
11.2.1				
3.3				
	3.3.1	1 ZAR (South African Rand) = 0,15761 NZD		
11.1.1		Category B = 123 NZD ✓		1:RT (123)
		$ZAR = \frac{123 \text{ NZD}}{0,15761 \text{ NZD}} \sqrt{10}$		1:M
		= 780,4073346		
		= 780,41 ✓	(3)	1:A
AS	3.3.2	1 NZD = R6,3450 ZAR		
11.1.1		200 NZD		1.14
		ZAR = 200 x 6,3450 ✓ = R1 269 ✓	(2)	1:M 1A
			[23]	
			[23]	

(NOVEMBER 2012)

QUE	STION	14		
1 1	[
4.1 LO2 AS 11.2.3	4.1.1	Cost price for 1 CD = $\frac{(80-30)}{10} \sqrt{OR}$ Cost price for 1 CD = $\frac{(130-30)}{20} \sqrt{10}$ = $\frac{50}{10} = \frac{100}{20}$ = R5 $\sqrt{10}$ = R5 $\sqrt{10}$		
		Cost price for 1 CD = ${}^{(180-30)}/{}_{30} \checkmark \mathbf{OR}$ Cost price for 1 CD = ${}^{(230-30)}/{}_{10} \checkmark$ = ${}^{150}/{}_{30}$ = ${}^{200}/{}_{40}$ = R5 \checkmark = R5 \checkmark		
		Cost price for 1 CD = ${}^{(280-30)}/{}_{50}\sqrt{OR}$ Cost price for 1 CD = ${}^{(330-30)}/{}_{60}\sqrt{=\frac{250}{}_{50}}$ = R5 $\sqrt{=\frac{850}{}_{50}}$		
		Cost price for 1 CD = ${}^{(380-30)}_{70}$ COR Cost price for 1 CD = ${}^{(430-30)}_{80}$ COR ${}^{=350}_{70}$ = ${}^{400}_{80}$ = R5 \checkmark = R5 \checkmark		
		Cost price for 1 CD = ${}^{(480-30)}/{}_{90} \checkmark$ = ${}^{450}/{}_{90}$ = R5 \checkmark	(2)	1:M 1:A
	4.1.2	Selling price of 1 CD = ${}^{60}/_{10}$ OR Selling price of 1 CD = ${}^{120}/_{20}$ = R6 $$ = R6 $$		
		Selling price of 1 CD = ${}^{180}/_{30}$ OR Selling price of 1 CD = ${}^{240}/_{40}$ \checkmark = R6 \checkmark = R6 \checkmark		
		Selling price of 1 CD = ${}^{300}/_{50} \checkmark$ OR Selling price of 1 CD = ${}^{360}/_{60} \checkmark$ = R6 \checkmark = R6 \checkmark		
		Selling price of $1CD = \frac{420}{70} \checkmark \mathbf{OR}$ Selling price of $1CD = \frac{480}{80} \checkmark = \mathbf{R6} \checkmark$		
		Selling price of $1CD = \frac{540}{90} \checkmark$ = R6 \checkmark	(2)	1:M 1:A
LO2 AS 11.2.3	4.1.3	Percentage profit = $\frac{(\text{Income} - \text{Expenses}) \times 100}{\text{Expenses}}$ = $\frac{6-5}{5} \times 100$		
		% profit = $\frac{1}{5} \times 100 \checkmark$ = 20% \checkmark	(2)	1:M 1:A
LO2 AS 11.2.1	4.1.4	30 ✓ ; 180 ✓		1:A (30) 1:A
			(2)	(180)

4.2(2) I_{AS}^{LO4} As 11.4.34.2.125% of the sales were 15 and less CD's for the month \checkmark (2) I_{AS}^{LO4} As 11.4.34.2.275% of the sales were 37 and more CD's for the month \checkmark (2) I_{AS}^{LO4} As 11.4.34.2.3Yes. \checkmark Most of the CD's he sold is above 15 (75%). \checkmark (2) I_{AS}^{LO3} AS 11.3.1Diameter of outer circle = 118 mm = 11,8 cm \checkmark Radius of outer circle = 5,9 cm \checkmark 1:C (mr to cm) 1:A I_{AS}^{LO3} As I_{AS}^{C1} Area of CD = Area of outer circle - Area of inner circle $= \pi r^2 - \pi r^2$ 1:C (mr to cm) 1:A	LO2 AS 11.2.1	4.1.5	Break-even point \checkmark For 30 CD's the income and expenses are exactly the same (R180). \checkmark	(2)	1:A 1:R
As 11.234.1.0Defore the breakeven point the income is less than the expenses. ✓ OR Before the breakeven point the expenses is more than the income ✓ (2)2:A102 4.24.1.7There is an initial cost of R30 (transport cost) ✓ ✓ (2)(2)24.2 4.2					
Before the breakeven point the expenses is more than the income \checkmark (2)2:A102 AS 11.234.1.7There is an initial cost of R30 (transport cost) \checkmark (2)24.2(2)(2)21.4.31.4.325% of the sales were 15 and less CD's for the month \checkmark (2)21.4.4(2)2(2)21.4.34.2.125% of the sales were 37 and more CD's for the month \checkmark (2)21.4.44.2.275% of the sales were 37 and more CD's for the month \checkmark (2)21.4.3Host of the CD's he sold is above 15 (75%). \checkmark (2)1:A1.4.3Diameter of outer circle = 118 mm = 11.8 cm \checkmark 1:A1:A1.3.1 1.3.2Radius of outer circle = 5.9 cm \checkmark 1:A1:A1.3.2 1.3.2Radius of inner circle = 0.75 cm1:C (mr to cm)1:AArea of CD = Area of outer circle - Area of inner circle $= \pi r^2 - \pi r^2$ $= 107,53 cm^2 \checkmark$ 0R1:SArea of CD = Area of outer circle - Area of inner circle $= \pi r^2 - \pi r^2$ $= 3.14 \times 5.9 cm \times 5.9 cm - 3.14 \times 0.75 cm \times 0.75 cm \checkmark= 109,3034 cm^2 - 1.76625 cm^2 \checkmark= 107,53715 cm^21:SF1:S1:CA1:CA1:CA1:S1:CA1:CA1:CA$	AS	4.1.6	expenses. VV		
As 11:2.3 4.1.7 There is an initial cost of K30 (transport cost) $\checkmark \checkmark$ (2) 2 4.2			Before the breakeven point the expenses is more than the	(2)	2:A
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	AS	4.1.7	There is an initial cost of R30 (transport cost) $\checkmark\checkmark$	(2)	2:A
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		ļ			
As 11.4.34.2.2175 % of the sales were 37 and more CD s for the month $\sqrt{7}$ (2)2 $11.4.3$ (2)(2)(2)(2)(2) $11.4.3$ Most of the CD's he sold is above 15 (75%). \checkmark (2)1:A $11.4.3$ Most of the CD's he sold is above 15 (75%). \checkmark (2)1:A 4.3 Diameter of outer circle = 118 mm = 11,8 cm \checkmark (2)1:A 4.3 Radius of outer circle = 5,9 cm \checkmark 1:A1:A $11.3.1$ Radius of outer circle = 0,75 cm1:C (mr1:C (mr $11.3.2$ Radius of inner circle = 0,75 cm1:A1:A $11.3.2$ $are a of CD = Area of outer circle - Area of inner circle1:A= 3,14 \times 5,9^2 - 3,14 \times 0,75^2 \checkmark1:A(finding= 107,53 \text{ cm}^2 \checkmarkare a of CD = Area of outer circle - Area of inner circle1:Aare a of CD = Area of outer circle - Area of inner circleare^2 - \pi r^21:SF= 3,14 \times 5,9 \text{ cm} \times 5,9 \text{ cm} - 3,14 \times 0,75 \text{ cm} \times 0,75 \text{ cm} \checkmark1:SF= 107,53715 \text{ cm}^2are^2 - \pi r^21:SF= 107,54 \text{ cm}^2 \checkmark(5)1:CA$	LO4 AS	4.2.1	25% of the sales were 15 and less CD's for the month $\checkmark\checkmark$	(2)	2:A
As $\frac{4.2.3}{11.43}$ $\stackrel{\text{Tes. }}{\longrightarrow}$	AS	4.2.2	75% of the sales were 37 and more CD's for the month $\checkmark\checkmark$	(2)	2:A
As 4.2.3 Tes. \checkmark Most of the CD's he sold is above 15 (75%). \checkmark (2) 1:R 4.3 Diameter of outer circle = 118 mm = 11,8 cm \checkmark Radius of outer circle = 5,9 cm \checkmark 11.3.1 11.3.2 Radius of inner circle = 0,75 cm Area of CD = Area of outer circle – Area of inner circle $= \pi r^2 - \pi r^2$ $= 3,14 \times 5,9^2 - 3,14 \times 0,75^2 \checkmark$ $= 109,30 \text{ cm}^2 - 1,77 \text{ cm}^2 \checkmark$ $= 107,53 \text{ cm}^2 \checkmark$ Area of CD = Area of outer circle – Area of inner circle $= \pi r^2 - \pi r^2$ $= 3,14 \times 5,9 \text{ cm} \times 5,9 \text{ cm} - 3,14 \times 0,75 \text{ cm} \times 0,75 \text{ cm} \checkmark$ $= 109,3034 \text{ cm}^2 - 1,76625 \text{ cm}^2 \checkmark$ $= 107,53715 \text{ cm}^2$ $= 107,54 \text{ cm}^2 \checkmark$ (5)	1.04	100			
Radius of outer circle = 5,9 cm \checkmark Radius of inner circle = 0,75 cm Area of CD = Area of outer circle – Area of inner circle = $\pi r^2 - \pi r^2$ = 3,14 x 5,9 ² – 3,14 x 0,75 ² \checkmark = 109,30 cm ² – 1,77 cm ² \checkmark = 107,53 cm ² \checkmark Area of CD = Area of outer circle – Area of inner circle = $\pi r^2 - \pi r^2$ = 3,14 x 5,9 cm x 5,9 cm – 3,14 x 0,75 cm x 0,75 cm \checkmark = 109,3034 cm ² – 1,76625 cm ² \checkmark = 107,53715 cm ² = 107,54 cm ² \checkmark (5)	AS	4.2.3		(2)	
	LO3 AS 11.3.1	Radiu Radiu	s of outer circle = 5,9 cm \checkmark s of inner circle = 0,75 cm of CD = Area of outer circle - Area of inner circle = $\pi r^2 - \pi r^2$ = 3,14 x 5,9 ² - 3,14 x 0,75 ² \checkmark = 109,30 cm ² - 1,77 cm ² \checkmark = 107,53 cm ² \checkmark oR of CD = Area of outer circle - Area of inner circle = $\pi r^2 - \pi r^2$ = 3,14 x 5,9 cm x 5,9 cm - 3,14 x 0,75 cm x 0,75 cm \checkmark = 109,3034 cm ² - 1,76625 cm ² \checkmark = 107,53715 cm ²	(5)	1:A (finding r) 1:SF 1:S
			· · · · · · · · · · · · · · · · · · ·	· · ·	
TOTAL: 100			TOTAL:	100	