



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

NOVEMBER 2011

MEMORANDUM

MARKS: 150

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

This memorandum consists of 20 pages.

QUESTION 1 [30 MARKS]			
Ques	Solution	Explanation	AS
1.1.1	$\overset{\checkmark A}{\text{Salary}} = \overset{\checkmark A}{R750} \times \text{number of days worked}$ <p style="text-align: center;">OR</p> $\overset{\checkmark A}{\text{Salary}} = \overset{\checkmark A}{R750} \times n, \text{ where } n \text{ is the number of days worked}$ <p style="text-align: center;">OR</p> $\overset{\checkmark A}{\text{Salary}} = \overset{\checkmark A}{R750n}, \text{ where } n \text{ is the number of days worked}$	<p>1A R750 1A multiplying by number of working days</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>(Max 1 mark if NOT one term. No penalty if rand symbol left out)</p> </div> <p style="text-align: right;">(2)</p>	12.2.1
1.1.2	<p style="text-align: center;">SALARY FOR POSITIONS</p>	<p>SA Meds graph:</p> <p>1CA (1; 3 500) plotted correctly 1CA (2; 4 000) or any other correct point plotted correctly 1CA (20; 13 000) 1CA joining points</p> <p>1A correct label for either graph</p> <p>ABC Cigs graph:</p> <p>1CA (1; 750) 1CA (20; 15 000) 1CA joining points</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Penalty 1 mark if Y-axis is joined</p> </div> <p style="text-align: right;">(8)</p>	12.2.2
1.1.3(a)	12 days $\checkmark\checkmark$ RG	2 RG reading from graph plotted	12.2.3

Ques	Solution	Explanation	AS
1.1.3(b)	16 days ✓✓RG OR Salary (Meds) = R3 000 + R500 × 18 = R12 000 ✓M ∴ R750 × number of days worked = R12 000 Number of days = 16 ✓A	2RG reading from graph plotted 1M calculating salary 1A number of days (2)	12.2.3
1.2.1	$\begin{aligned} \text{Total extra distance travelled} &= 20 \times 2 \times 40 \text{ km} \quad \checkmark A \quad \checkmark M \\ &= 1\,600 \text{ km} \quad \checkmark A \end{aligned}$ $\begin{aligned} \text{Extra petrol needed} &= 1\,600 \text{ km} \times 7,5 \ell \div 100 \text{ km} \quad \checkmark M \\ &= 120 \ell \quad \checkmark CA \end{aligned}$ $\begin{aligned} \text{Extra cost} &= \text{petrol cost} + \text{maintenance cost} \\ &= 120 \ell \times R9,82 + 1\,600 \times R0,70 \quad \checkmark M \quad \checkmark CA \\ &= R1\,178,40 + R1\,120,00 \\ &= R2\,298,40 \quad \checkmark CA \end{aligned}$ <p style="text-align: center;">OR</p> $\begin{aligned} \text{Extra cost per single trip} &= 40 \text{ km} \times 7,5 \ell \div 100 \text{ km} \times R9,82/\ell \quad \checkmark M \quad \checkmark A \\ &= R29,46 \quad \checkmark A \end{aligned}$ $\begin{aligned} \text{Extra maintenance cost per single trip} &= 40 \text{ km} \times R0,70/\text{km} \quad \checkmark A \\ &= R28,00 \quad \checkmark A \end{aligned}$ $\begin{aligned} \text{Total extra cost per single trip} &= R29,46 + R28,00 \\ &= R57,46 \quad \checkmark CA \end{aligned}$ $\begin{aligned} \text{Total extra cost for 2 trips} &= 2 \times 20 \times R57,46 \quad \checkmark A \\ &= R2\,298,40 \quad \checkmark CA \end{aligned}$ <p style="text-align: center;">OR</p>	1A number of days and trips 1M extra distance/trip 1A total distance <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px 0;">Penalty 2 marks if one way distance calculated</div> 1M multiplying and dividing 1CA extra petrol needed 1M petrol cost 1CA maintenance cost 1CA simplification 1M multiplying and dividing 1A using petrol cost 1A extra petrol cost 1A using maintenance cost 1A extra maintenance cost 1CA cost per single trip 1A number of days and trips 1CA simplification	12.2.1 12.1.1

Ques	Solution	Explanation	AS
	<p style="text-align: center;">OR</p> <p>Extra cost</p> $= (20 \times 2 \times 40 \text{ km}) \times 7,5 \text{ ℓ} \div 100 \text{ km} \times \text{R}9,82$ $+ (20 \times 2 \times 40 \text{ km}) \times \text{R}0,70$ $= \text{R}2\,298,40$	<p>1A number of days and trips 1M extra distance/trip 1M multiplying and dividing 1A petrol needed 1A petrol cost 1A distance maintenance cost 1A maintenance cost 1CA simplification</p> <p style="text-align: center;">Answer only full marks</p> <p style="text-align: right;">(8)</p>	
1.2.2	<p>He should accept the job at Meds SA. ✓CA</p> <p>He will earn R2 000 more per month at ABC Cigs, but will have to pay R2 298,40 more per month for travel. ✓✓J</p> <p style="text-align: center;">OR</p> <p>He must choose Meds SA because he earns R298,40 more ✓CA ✓CA ✓✓J</p>	<p>1CA choice 1CA difference in salary 2J justification</p> <p style="text-align: right;">(4)</p>	12.4.4
1.2.3	<p>The manager is generalizing results from a misleading graph. ✓✓J</p> <p>The graph provides no time comparison and thus there is no annual decrease in the number of deaths due to cigarette smoking. ✓J ✓J</p> <p style="text-align: center;">OR</p> <p>The manager is generalizing results from a misleading graph. ✓✓J</p> <p>The graph shows the percentage of deaths per type of disease arranged in a descending order and thus does not show a decrease in the number of annual deaths due to cigarette smoking. ✓✓J</p>	<p>2J justification</p> <p>2J justification</p> <p>2J justification</p> <p style="text-align: right;">(4)</p>	12.4.6

QUESTION 2 [23MARKS]			
Ques	Solution	Explanation	AS
2.1.1	$\text{Gail's rate} = \frac{\text{R750}}{3,75 \text{ hours}} \quad \checkmark \text{RT} \quad \checkmark \text{M}$ $= \text{R200,00 per hour} \quad \checkmark \text{A}$ $\text{TBOS' rate} = \frac{\text{R400}}{2,5 \text{ hours}} \quad \checkmark \text{A}$ $= \text{R160 per hour}$ $\text{Dong's rate} = \frac{\text{R700}}{3,5 \text{ hours}} \quad \checkmark \text{A}$ $= \text{R200 per hour}$ $\therefore \text{ Her statement is incorrect} \quad \checkmark \text{CA}$ <p style="text-align: center;">OR</p> $\text{Gail's cost for 3,75 hours} = \text{R750,00} \quad \checkmark \text{A}$ $\text{TBOS' cost for 3,75 hours} = \frac{\text{R400}}{2,5 \text{ hours}} \times 3,75 \text{ hours} \quad \checkmark \text{M} \quad \checkmark \text{A}$ $= \text{R600,00} \quad \checkmark \text{CA}$ $\text{Dongs cost for 3,5 hours} = \text{R700,00} \quad \checkmark \text{A}$ $\therefore \text{ Her statement is incorrect} \quad \checkmark \text{CA}$	1RT reading from the table 1M finding the rate 1A Gail's rate 1A TBOS' rate 1A Dong's rate 1CA conclusion (Accept a similar statement) 1A Gail's rate 1M dividing 1A correct values 1CA TBOS' rate 1A Dong's rate 1CA conclusion	12.1.1 12.1.3
		maximum 2 marks if only a correct conclusion is made without calculations	
			(6)

Ques	Solution	Explanation	AS
2.1.2	<p>Total excluding VAT $\times 114\% = R9\ 497,93$</p> <p>Total excluding VAT = $\frac{R9\ 497,93}{114\%} \checkmark M$</p> <p style="text-align: center;">$= R\ 8\ 331,52 \checkmark A$</p> <p>Total cost of parts and labour from table</p> <p style="text-align: center;">$= R6\ 599,53 + R1\ 600,00$</p> <p style="text-align: center;">$= R\ 8\ 199,53 \checkmark A$</p> <p>$\therefore$ Cost of Sundries and consumables $\checkmark M$</p> <p style="text-align: center;">$= R8\ 331,52 - R8\ 199,53$</p> <p style="text-align: center;">$= R131,99 \checkmark CA$</p> <p style="text-align: center;">OR</p> <p>Total costs including VAT = R9 497,93</p> <p>Labour and Spares excluding VAT = R6 599,53 + R1 600,00</p> <p style="text-align: center;">$= R8\ 199,53 \checkmark A$</p> <p style="text-align: right;">$\checkmark M$</p> <p>Labour and Spares including VAT = R8 199,53 $\times 1,14$</p> <p style="text-align: center;">$= R9\ 347,46 \checkmark A$</p> <p>Sundries and Consumables including VAT</p> <p style="text-align: center;">$= R9\ 497,93 - R9\ 347,46$</p> <p style="text-align: center;">$= R150,47 \checkmark CA$</p> <p>Sundries and Consumables excluding VAT = $\frac{R150,47}{114\%} \checkmark M$</p> <p style="text-align: center;">$= R131,99 \checkmark CA$</p>	<p>1M division</p> <p>1A percentage including VAT</p> <p>1A total excl VAT</p> <p>1A total cost</p> <p>1M subtracting</p> <p>1CA simplification</p> <p>1A total cost</p> <p>1M including VAT</p> <p>1A amount including VAT</p> <p>1CA amount including VAT</p> <p>1M division by 114%</p> <p>1CA simplification (6)</p>	12.1.1

QUESTION 3 [27 MARKS]			
Ques	Solution	Explanation	AS
3.1.1 (a)	4,0 cm ✓✓A	2A measurement (Accept from 3,7 cm to 4,3 cm) Maximum 1 mark if answer in mm (2)	12.3.2 12.3.3
3.1.1(b)	<p>✓M ✓A 2 cm represent 300 km</p> <p>✓M ✓CA ∴ 4,0 cm represent (300 + 300) km = 600 km ✓CA</p> <p>OR</p> <p>✓M ✓A 2 cm represent 300 km</p> <p>2 cm represent 30 000 000 cm</p> <p>∴ the scale is 1: 15 000 000 ✓CA</p> <p>Actual distance = 4,0 cm × 15 000 000</p> <p>= 60 000 000 cm ✓M</p> <p>= 600 km ✓C</p> <p>OR</p> <p>✓M ✓A 2 cm represents 300 km</p> <p>4,0 cm represents $\frac{300 \text{ km} \times 4,0 \text{ cm}}{2 \text{ cm}}$ ✓CA</p> <p>= 600 km ✓CA</p> <p>OR</p>	<p>1M measuring 1A scale</p> <p>1M adding the correct scale values 1CA using correct values 1CA simplification</p> <p>1M measuring 1 A scale 1CA ratio</p> <p>1M multiplying 1C conversion</p> <p>1M measuring 1A scale 1CA multiplying 1CA dividing</p> <p>1CA solution (Accept 555 km to 645 km)</p> <p>If 1,8 cm = 300 km distance will be 666,67 km, then accept 616,67 km to 716,67 km</p>	12.3.2 12.3.3

Ques	Solution	Explanation	AS
3.1.1(b)	<p> $\checkmark M$ $0,8 \text{ cm represent } 100 \text{ km}$ $\checkmark A$ </p> <p> There are 5 (0,8cm) in 4 cm $\checkmark M$ </p> <p> $\therefore 4,0 \text{ cm represent } (100 + 100 + 100 + 100 + 100) \text{ km}$ $\checkmark CA$ $= 500 \text{ km}$ $\checkmark CA$ </p> <p style="text-align: center;">OR</p> <p> $\checkmark M$ $0,8 \text{ cm represent } 100 \text{ km}$ $\checkmark A$ $0,8 \text{ cm represent } 10\,000\,000 \text{ cm}$ $\therefore \text{ the scale is } 1: 125\,000\,000$ $\checkmark CA$ </p> <p> Actual distance = $4,0 \text{ cm} \times 125\,000\,000$ $= 500\,000\,000 \text{ cm}$ $\checkmark M$ $= 500 \text{ km}$ $\checkmark C$ </p> <p style="text-align: center;">OR</p> <p> $\checkmark A$ $\checkmark M$ $0,8 \text{ cm} : 100 \text{ km} = 4 : x$ $\checkmark CA$ $x = \frac{100 \text{ km} \times 4,0 \text{ cm}}{0,8 \text{ cm}}$ $\checkmark CA$ $= 500 \text{ km}$ $\checkmark CA$ </p>	<p>1M measuring 1A scale</p> <p>1M adding the correct scale values 1CA using correct values 1CA simplification</p> <p>1M measuring 1 A scale 1CA ratio</p> <p>1M multiplying 1C conversion</p> <p>1A scale 1M proportion 1CA multiplying 1CA dividing 1CA solution (Accept 462,5 km to 537,5 km)</p>	<p>12.3.2 12.3.3</p> <p style="text-align: right;">(5)</p>

Ques	Solution	Explanation	AS
3.1.2	<p>600 km = 110 km/h × Time</p> $\text{Time} = \frac{600 \text{ km}}{110 \text{ km/h}} \quad \checkmark \text{M}$ $= 5,4545\dots \text{ hours } \checkmark \text{CA}$ $\approx 5,45 \text{ hours}$ <p>Arrival time is 13:42 $\checkmark \text{CA}$ They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> $\text{Time} = \frac{600 \text{ km}}{110 \text{ km/h}} \quad \checkmark \text{M}$ $= 5,4545\dots \text{ hours } \checkmark \text{CA}$ $\approx 5,45 \text{ hours}$ <p>From 08:15 to 14:30 = 6 h 15 min = 6,25 hours $\checkmark \text{CA}$</p> <p>They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> $\text{Time from } 08:15 \text{ to } 14:30 = 6 \text{ h } 15 \text{ min} = 6,25 \text{ hours} \quad \checkmark \text{A}$ <p>Distance travelled = 110 km/h × Time $\checkmark \text{M}$ = 110 km/h × 6,25 hours $\checkmark \text{M}$ = 687,5 km $\checkmark \text{CA}$</p> <p>This distance is greater than the distance between Pietermaritzburg and Johannesburg. They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> $\text{Time from } 08:15 \text{ to } 14:30 = 6 \text{ h } 15 \text{ min} = 6,25 \text{ hours} \quad \checkmark \text{A}$ $\text{Required speed} = \frac{600 \text{ km}}{6,25 \text{ h}} = 96 \text{ km/h} \quad \checkmark \text{M}$ <p style="text-align: center;">$\checkmark \text{CA}$</p> <p>He will arrive before 14:30 because he is travelling faster than the required speed.</p>	<p>1M division</p> <p>1CA time taken (Accept 4,95 to 5,86 and arrival time 13:18 to 14:07) 1CA arrival time 1CA reflection</p> <p>1M division</p> <p>1CA solution (Accept 4,95 to 5,86 and arrival time 13:18 to 14:07) 1CA calculating time 1CA reflection</p> <p>1A calculating time</p> <p>1M multiplying 1CA calculating distance</p> <p>1CA reflection</p> <p>1A calculating time</p> <p>1M dividing 1CA calculating speed</p> <p>1CA reflection</p>	12.2.1

(4)

Ques	Solution	Explanation	AS
3.1.3(a)	<p>Amount of fuel bought \times R10,12 per litre = R 455,40</p> <p>Amount of fuel bought = $\frac{\text{R } 455,40}{\text{R } 10,12 \text{ per litre}}$ \checkmarkM \checkmarkA</p> <p style="text-align: center;">= 45 litres \checkmarkCA</p> <p>Fuel left in the tank = $60 \ell - 45 \ell$ \checkmarkM</p> <p style="text-align: center;">= 15ℓ \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p> <p style="text-align: center;">OR</p> <p>Tank capacity = 60ℓ</p> <p style="text-align: center;">\checkmarkM</p> <p>Half-filled tank = 30ℓ</p> <p style="text-align: center;">\checkmarkA \checkmarkM \checkmarkA</p> <p>Cost to fill half-filled tank = $30 \ell \times \text{R}10,12 \text{ per litre}$</p> <p style="text-align: center;">= R 303,60 \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p> <p style="text-align: center;">OR</p> <p>Full tank = 60ℓ</p> <p>Cost to fill a full tank = $60 \ell \times \text{R}10,12 \text{ per litre}$ \checkmarkM</p> <p style="text-align: center;">= R 607,20 \checkmarkA</p> <p>Cost of fuel left in tank before filling = $\text{R}607,20 - \text{R}455,40$</p> <p style="text-align: center;">= R151,80 \checkmarkCA</p> <p>Petrol in tank before filling = $\frac{\text{R}151,80}{\text{R}10,12 \text{ per } \ell}$ = 15ℓ \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p>	<p>1M division 1A using correct values 1CA petrol filled</p> <p>1M subtracting 1CA petrol before filling</p> <p>1CA decision</p> <p>1M division 1A using correct values 1M multiplying 1A petrol cost 1CA simplification 1CA decision</p> <p>1M multiplying 1A correct value</p> <p>1CA subtraction</p> <p>1M division 1CA simplification</p> <p>1CA decision</p>	<p>12.1.1 12.3.2</p> <p style="text-align: right;">(6)</p>

Ques	Solution	Explanation	AS
3.1.3(b)	<p>They used 9 ℓ to cover 100 km 1 ℓ to cover $\frac{100}{9}$ km 45 ℓ to cover $\frac{100}{9} \times 45$ km ✓M = 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km = 100 km ✓CA</p> <p style="text-align: center;">OR</p> <p>Distance travelled × petrol consumption = number of litres used</p> <p>Distance travelled = $\frac{45 \ell}{9 \ell \text{ per } 100 \text{ km}}$ ✓M = 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km = 100 km ✓CA</p> <p style="text-align: center;">OR</p> <p>9 ℓ : 100 km = 45 ℓ : x $x = \frac{45 \ell \times 100 \text{ km}}{9 \ell}$ ✓M = 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km = 100 km ✓CA</p>	<p>1M dividing by the consumption rate 1CA distance travelled 1CA solution (Accept 55 km to 145 km)</p> <p>1M dividing by the consumption rate 1CA distance travelled</p> <p>1CA simplification (Accept 55 km to 145 km)</p> <p>1M using proportion 1CA distance travelled</p> <p>1CA simplification (Accept 55 km to 145 km)</p> <p style="text-align: right;">(3)</p>	12.3.2
3.2	<ul style="list-style-type: none"> • take the N2 to Durban ✓A • take the N3 to Harrismith ✓A • take N5 to Bloemfontein ✓A • take the N8 through Kimberley ✓A • take the N10 until Upington ✓A 	<p>1A route and town 1A route and town 1A route and town 1A route and town 1A route and town</p> <p>Port Shepstone to East London to Upington N6 N8 N10 (max 4 marks)</p> <p>Port Shepstone to East London to Upington N10 (max 3 marks) (5)</p>	12.3.4
3.3	Rustenburg ✓✓A	2A destination (2)	12.3.4

QUESTION 4 [28 MARKS]			
Ques	Solution	Explanation	AS
4.1	South ✓A ✓A	2A direction <div style="border: 1px solid black; padding: 2px; display: inline-block;"> South West full marks </div> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> South East 1 mark </div> (2)	12.3.4
4.2	$\begin{aligned} \text{Area of a window} &= 160 \text{ cm} \times 130 \text{ cm} \quad \checkmark\text{M} \\ &= 20\,800 \text{ cm}^2 \\ &= 2,08 \text{ m}^2 \quad \checkmark\text{C} \end{aligned}$ <p style="text-align: center;">OR</p> $\begin{aligned} \text{Area of a door opening} &= 109\% \text{ of } 2,08 \text{ m}^2 \quad \checkmark\text{M} \\ &= 1,09 \times 2,08 \text{ m}^2 \\ &= 2,2672 \text{ m}^2 \quad \checkmark\text{CA} \end{aligned}$ $\begin{aligned} 2,14 \text{ m} \times \text{width} &= 2,2672 \text{ m}^2 \\ \text{width} &= \frac{2,2672 \text{ m}^2}{2,14 \text{ m}} \\ &= 1,0594\dots \\ &\approx 1,06 \text{ m} \quad \checkmark\text{CA} \end{aligned}$	1M multiplying 1C conversion 1M working with percentage 1CA area 1CA width of door opening in metres (5)	12.3.1 12.3.2

Ques	Solution	Explanation	AS
4.3.1	<p>Area of N wall = $2,984 \text{ m} \times 2,4 \text{ m} \checkmark \text{SF}$ $= 7,1616 \text{ m}^2 \checkmark \text{A}$</p> <p>Area of S wall = area of N wall – area of window $= 7,1616 \text{ m}^2 - 2,08 \text{ m}^2 \checkmark \text{M}$ $= 5,0816 \text{ m}^2 \checkmark \text{CA}$</p> <p>Area of W wall = $3,304 \times 2,4 \checkmark \text{SF}$ $= 7,9296 \text{ m}^2 \checkmark \text{A}$</p> <p>Area of E wall = Area W wall – area of door $= 7,9296 \text{ m}^2 - 2,2672 \text{ m}^2 \checkmark \text{M}$ $= 5,6624 \text{ m}^2 \checkmark \text{CA}$</p> <p>Total area = $(7,1616 + 5,0816 + 7,9296 + 5,6624) \text{ m}^2 \checkmark \text{M}$ $= 25,8352 \text{ m}^2$ $\approx 25,84 \text{ m}^2 \checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> <p>Area of bedroom 2 = $2(\text{area of W wall}) + 2(\text{area of S wall})$ – area of window – area of door $\checkmark \text{SF} \quad \checkmark \text{A} \quad \checkmark \text{A} \quad \checkmark \text{M} \quad \checkmark \text{M}$ $= 2(3,304 \text{ m} \times 2,4 \text{ m}) + 2(2,984 \text{ m} \times 2,4 \text{ m}) - (2,08 \text{ m}^2)$ $- (2,2672 \text{ m}^2) \checkmark \text{M}$ $\checkmark \text{CA} \quad \checkmark \text{CA} \quad \checkmark \text{CA}$ $= 15,8592 \text{ m}^2 + 14,3232 \text{ m}^2 - 4,3472 \text{ m}^2$ $= 25,8352 \text{ m}^2$ $\approx 25,84 \text{ m}^2 \checkmark \text{CA}$</p>	<p>1SF substitution 1A area of N wall</p> <p>1M subtracting areas 1CA area of S wall</p> <p>1SF substitution 1A area of W wall</p> <p>1M subtracting areas 1CA area of E wall</p> <p>1M adding all areas 1CA simplification</p> <p>1SF substitution 1A area of N wall 1A area of W wall 1M multiplying by 2 1M subtraction 1M subtraction 3CA simplification 1CA final simplification</p> <p style="text-align: right;">(10)</p>	<p>12.3.1 12.3.2</p>

Ques	Solution	Explanation	AS
4.3.2	<p>Total area to be painted in both bedrooms $= 25,84 \text{ m}^2 + 28,44 \text{ m}^2$ $= 54,28 \text{ m}^2$ ✓CA ✓M</p> <p>Amount of paint required = $\frac{54,28 \text{ m}^2}{4 \text{ m}^2 / \ell}$ OR $\frac{54,28 \text{ m}^2}{20 \text{ m}^2 \text{ per tin}}$ $= 13,57 \ell$ ✓CA = 2,714 tins</p> <p>Number of 5 ℓ containers = $\frac{13,57 \ell}{5 \ell}$ ✓M $\approx 2,714$ ∴ 3 containers are needed. ✓R</p> <p>Cost = R169,99 × 3 ✓CA $= \text{R}509,97$</p> <p>Mrs Wong’s estimation was INCORRECT ✓O</p> <p style="text-align: center;">OR</p> <p>4 m² is covered by 1 ℓ of paint 1 m² is covered by $\frac{1}{4} \ell$ of paint ✓M</p> <p>Total area to be painted in both bedrooms $= 25,84 \text{ m}^2 + 28,44 \text{ m}^2$ $= 54,28 \text{ m}^2$ ✓CA</p> <p>∴ 54,28 m² is covered by $\frac{1}{4} \times 54,28 \ell$ of paint $= 13,57 \ell$ ✓CA ✓M</p> <p>Number of 5 ℓ containers = $\frac{13,57 \ell}{5 \ell}$ $= 2,714$ ∴ 3 containers are needed. ✓R</p> <p>Cost = R169,99 × 3 ✓CA $= \text{R}509,97$</p> <p>Mrs Wong’s estimation was INCORRECT ✓O</p>	<p>1CA simplification</p> <p>1M dividing</p> <p>1CA simplification</p> <p>1M dividing by 5 ℓ</p> <p>1R rounding up</p> <p>1CA cost</p> <p>1O correct conclusion</p> <p>1M dividing</p> <p>1CA simplification</p> <p>1CA simplification</p> <p>1M dividing by 5 ℓ</p> <p>1R rounding up</p> <p>1CA cost</p> <p>1O correct conclusion</p>	<p>12.1.1</p> <p>12.1.2</p> <p>(7)</p>

Ques	Solution	Explanation	AS
4.4	<p>Total number of hours worked = $(6 + 6 \times 1\frac{1}{2})$ hours ✓M = 15 hours ✓A</p> <p>Total labour cost = $15 \times R35,90$ = R538,50 ✓CA</p> <p>∴ The invoice amount was incorrect. ✓O</p> <p style="text-align: center;">OR</p> <p>Total labour cost = $6 \times R35,90 + 6 \times 1\frac{1}{2} \times R35,90$ ✓M ✓A = R538,50 ✓CA</p> <p>∴ The invoice amount was incorrect. ✓O</p> <p style="text-align: center;">OR</p> <p>Rate on Saturdays = $R35,90 + \frac{1}{2} \times R35,90 = R53,85$</p> <p>Labour cost on Saturday = $6 \times R53,85 = R323,10$ ✓CA</p> <p>Labour cost on Friday = $6 \times R35,90 = R215,40$ ✓A</p> <p>Total payment = $R323,10 + R215,40 = R538,50$ ✓M</p> <p>∴ The invoice amount was incorrect. ✓O</p>	<p>1M finding total time 1A simplification 1CA total payment 1O correct conclusion</p> <p>1M finding total hour 1A simplification 1CA total payment 1O correct conclusion</p> <p>1CA Sunday 1A Friday 1M adding 1O correct conclusion</p> <p style="text-align: right;">(4)</p>	<p>12.1.3 12.2.1</p>

QUESTION 5 [42 MARKS]			
Ques	Solution	Explanation	AS
5.1.1	$P(\text{scoring more than } 90\%) = \frac{\text{number of scores more than } 90}{\text{total number of scores}}$ $= \frac{2}{14} \checkmark A$ $= \frac{1}{7} \checkmark CA \text{ OR } 0,14 \text{ OR } 14,29\%$	1A number of scores more than 90) 1M probability 1CA simplifying (value must be less than 1) <div style="border: 1px solid black; padding: 2px; width: fit-content;"> Answer only full marks </div>	12.4.5
5.1.2 (a)	<p><u>Vuka Secondary</u></p> <p>49; 50; 54; 57; 67; 67; 67; 78; 78; 89; 90; 90; 95; 98 $\checkmark A$</p> <p>P (Median) = $\frac{67\% + 78\%}{2} \checkmark M$</p> <p style="padding-left: 40px;">= 72,5% $\checkmark CA$</p> <p>Q (Mean) $\checkmark M$</p> <p>= $\frac{90+67+67+89+50+78+54+67+95+90+98+57+49+78}{14} \%$</p> <p>= $\frac{1\ 029}{14} \%$ $\checkmark A$</p> <p>= 73,5% $\checkmark CA$</p> <p><u>Bathini High</u></p> <p>R (Range) = 99% – 59% $\checkmark M/A$</p> <p style="padding-left: 40px;">= 40% $\checkmark A$</p>	1A Arranging 1M concept of median 1CA simplifying <div style="border: 1px solid black; padding: 2px; width: fit-content;"> Maximum 1 if data not arranged </div> 1M concept of mean 1A correct sum 1CA simplifying 1M/A concept 1A range <div style="border: 1px solid black; padding: 2px; width: fit-content;"> No penalty if percentage left out </div> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> Answer only full marks </div>	12.4.3

(3)

(8)

Ques	Solution	Explanation	AS															
5.1.2(b)	<table border="1" data-bbox="280 309 1023 499"> <thead> <tr> <th></th> <th>Median</th> <th>Mode</th> <th>Mean</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td>Bathini High</td> <td>72%</td> <td>67%</td> <td>76,4%</td> <td>40%</td> </tr> <tr> <td>Vuka Secondary</td> <td>72,5%</td> <td>67%</td> <td>73,5%</td> <td>49%</td> </tr> </tbody> </table> <p>Bathini High performed better ✓CA</p> <p>Bathini High has a greater mean ✓J OR Vuka Secondary has a smaller mean</p> <p>Bathini High a smaller range ✓J OR Vuka Secondary has a larger range</p>		Median	Mode	Mean	Range	Bathini High	72%	67%	76,4%	40%	Vuka Secondary	72,5%	67%	73,5%	49%	<p>1CA identifying school</p> <p>1J mean</p> <p>1J range</p> <p>(3)</p>	12.4.3
	Median	Mode	Mean	Range														
Bathini High	72%	67%	76,4%	40%														
Vuka Secondary	72,5%	67%	73,5%	49%														
5.1.3(a)	<p>The scores are 90%; 95% and 98% ✓A ✓A ✓A</p>	<p>1A for 90%</p> <p>1A for 95%</p> <p>1A for 98%</p> <div data-bbox="1098 965 1390 1115" style="border: 1px solid black; padding: 5px;"> <p>Penalty for each extra value. No penalty for extra 90%</p> </div> <p>(3)</p>	12.4.3															
5.1.3(b)	<p>25th percentile of Bathini High = 67% ✓A</p> <p>∴ 4 learners ✓CA</p>	<p>1A identifying score</p> <p>1CA number of learners</p> <div data-bbox="1098 1335 1390 1402" style="border: 1px solid black; padding: 5px;"> <p>Answer only full marks</p> </div> <p>(2)</p>	12.4.3															

Ques	Solution	Explanation	AS
5.1.4(a)	<p style="text-align: center;"> $\checkmark A$ $\checkmark A$ Lindiwe's score = $(18 \times 2) + (10 \times 1) + (10 \times 3)$ marks $\checkmark A$ = $(36 + 10 + 30)$ marks = 76 marks $\checkmark CA$ </p> <p>∴ The records were NOT correct $\checkmark J$</p> <p style="text-align: center;">OR</p> <p style="text-align: center;"> $\checkmark A$ Lindiwe lost only $2 \times 12 = 24$ marks $\checkmark A$ Lindiwe's score = $(100 - 24)$ marks $\checkmark M$ = 76 marks $\checkmark CA$ </p> <p>∴ The records were NOT correct $\checkmark J$</p>	<p>3A correct values</p> <p>1CA simplification</p> <p>1J conclusion</p> <p>2A calculating</p> <p>1M subtraction</p> <p>1CA simplification</p> <p>1J conclusion</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;"> <p>Maximum 2 marks for correct conclusion with no calculations</p> </div> <p style="text-align: right;">(5)</p>	12.1.1
5.1.4(b)	<p>OPTION 1</p> <p style="text-align: center;"> $\checkmark M$ 30 Multiple choice correct answers = 30×2 marks $\checkmark A$ = 60 marks $\checkmark A$ </p> <p>10 short questions correct = $10 \times 3 = 30$ marks $\checkmark A$ 5 one-word answers correct = $5 \times 1 = 5$ marks $\checkmark A$</p> <p>Total marks = $60 + 30 + 5 = 95$ $\checkmark A$</p> <p>OPTION 2</p> <p style="text-align: center;"> $\checkmark M$ 30 Multiple choice correct answers = 30×2 marks $\checkmark A$ = 60 marks $\checkmark A$ </p> <p>9 short questions correct = $9 \times 3 = 27$ marks $\checkmark A$ 8 one-word answers correct = $8 \times 1 = 8$ marks $\checkmark A$</p> <p>Total marks = $60 + 27 + 8 = 95$ $\checkmark A$</p>	<p>1M multiplication</p> <p>1A simplification</p> <p>1A short questions</p> <p>1A one-word</p> <p>1A simplification</p> <p>Learners can reason that 5 marks are lost</p> <p>1M multiplication</p> <p>1A simplification</p> <p>1A short questions</p> <p>1A one-word</p> <p>1A simplification</p> <p>Learners can reason that 5 marks are lost</p> <p style="text-align: right;">(5)</p>	12.1.1 12.2.1

Ques	Solution	Explanation	AS
5.2.1	<p>96,67% of the number of learners who passed the examination = 29 Number of learners who wrote $= \frac{29}{96,67\%} \checkmark M \quad \text{OR} \quad = \frac{29}{96,67} \times \frac{100}{1} \checkmark M \checkmark A$ $= 29,99896555... \quad = 29,99896555... \checkmark A$ $\approx 30 \quad \approx 30$</p> <p>Number of learners who failed = $30 - 29 = 1 \checkmark CA$</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">$\checkmark M \quad \checkmark A$</p> $96,67\% : 29 = 3,33\% : \frac{3,33 \times 29}{96,67}$ $= 3,33\% : 1 \checkmark CA \quad \checkmark CA$ <p>Number of learners who failed = 1</p> <p style="text-align: center;">OR</p> <p>method of trial – and - error</p>	<p>1A using correct numbers 1M division 1A 30 learners 1CA simplification 1M using ratio 1A 3,33% 1CA simplification 1CA simplification</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Answer only full marks</p> </div> <p style="text-align: right;">(4)</p>	12.1.1 12.4.4
5.2.2	<p>Number of learners who passed = 134 $\checkmark A$ $P(\text{degree pass}) = \frac{\text{number of learners with a degree pass}}{\text{total number of learners who passed}}$ $= \frac{65}{134} \checkmark A \quad \checkmark M$ $\approx 48,5\% \checkmark CA$</p>	<p>1A total number of learners who passed 1A number of degree passes 1M probability 1CA percentage (less than 100%) to 1 decimal place</p> <p style="text-align: right;">(4)</p>	12.1.1 12.4.5
5.2.3	<p>Vuka Secondary performed better. $\checkmark A$ Vuka Secondary entered 153 learners for the Matric examination and more of them obtained a degree pass. (42,48%) $\checkmark J$ Vuka Secondary also had more diploma passes (28,8%) $\checkmark J$</p> <p style="text-align: center;">$\checkmark A$</p> <p style="text-align: center;">OR</p> <p>Bathini High had a higher overall percentage pass rate but they only had 30 learners who wrote the examination and only 13,33% obtained a degree pass. $\checkmark J$</p> <p style="text-align: center;">OR</p> <p>Any similar well thought-out reasoning.</p>	<p>1A correct school 2J justification 2J justification</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>If Bathini is chosen max 3 marks</p> </div> <p style="text-align: right;">(5)</p>	12.1.1 12.4.4

TOTAL: 150