



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2012

MATHEMATICAL LITERACY P1

MARKS: 150

TIME: 3 hours



This question paper consists of 12 pages, including 2 annexures.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of SIX questions. Answer ALL the questions.
2. QUESTION 2.1 and QUESTION 2.2.1 must be answered on the attached ANNEXURES A and B respectively. Write your name in the space provided and hand in the annexures with the ANSWER BOOK.
3. Number the questions correctly according to the numbering system used in this question paper.
4. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
5. ALL calculations must be shown clearly.
6. ALL the final answers must be rounded off to TWO decimal places, unless stated otherwise.
7. Start EACH question on a NEW page.
8. Write neatly and legibly.

QUESTION 1

You and your English cousin, John, are both in matric this year and have been comparing your last 3 Mathematical Literacy assignment marks.

1.1 Your marks are as follows:

$$\frac{23}{30}; \frac{56}{75} \text{ and } \frac{37}{40}$$

1.1.1 Convert these marks to percentages.
(Round off your answers to the nearest percentage.) (3)

1.1.2 Calculate your average percentage for your marks. (3)

1.2 John's marks were as follows:

$$\frac{27}{35}; \frac{36}{40} \text{ and } \frac{54}{60}$$

1.2.1 Convert these marks to percentages.
(Round off your answers to the nearest percentage.) (3)

1.2.2 Calculate John's average percentage for his marks. (3)

1.2.3 Who did the best in their work? (1)

1.3 You are planning to go on holiday and visit your family over the Christmas season. You have been asked by your aunt to bring your mother's recipe for her milk tart filling as she would like to make it for the family tea on Christmas Day.

You have been given the recipe by your mother and these are the ingredients required:

MILK TART FILLING

540 ml milk
85 g flour
1 pinch salt
30g margarine
100g sugar
Cinnamon sugar to taste

Mom's tip –
Secret to get it to set right is in the baking!

Bake at 220 °C for 20 minutes and then reduce heat to 200 °C for the last 10 minutes.

Your aunt is used to using imperial measures so you are going to have to change the recipe for her before you go on holiday. In the front of the recipe book is the following table:

Mass		
Ounces to grams	1 ounce (oz)	25 grams (g)
Pounds to grams	1 pound (lb)	400 grams (g)
Volume		
Pints to millilitres	1 pint	560 ml
Tablespoons to millilitres	1 tablespoon	12,5 ml
Teaspoons to millilitres	1 teaspoon	5ml

- 1.3.1 Change the amounts required for the milk, flour, margarine and sugar to imperial measurements using the table above. (4 x 2) (8)
- 1.3.2 Change the degrees Celsius to Fahrenheit using the following formula;
 $^{\circ}\text{F} = (^{\circ}/_{5} \times ^{\circ}\text{C}) + 32$ (2 x 2) (4)
- 1.4 To be able to do go on holiday s you will need to do quite a bit of saving in order to pay for your plane ticket and have enough spending money while overseas.
- Your plane ticket is going to cost you R6 573,00 return. The travel agent you are using is going to allow you to use their, “*Fly now, Pay later*” scheme.
- This means that you will be able to pay a 10% deposit and pay the remainder off monthly over 2 years and you will be charged 15% p.a. using simple interest.
- Use the formula; $A = P (1 + rt)$ or Where
- $A = P + (P \times r \times t)$
- A = future value
P = starting value
r = interest rate
t = time in years
- 1.4.1 Calculate how much deposit you must pay. (3)
- 1.4.2 Calculate how much you will pay back for your plane ticket over 2 years. (4)
- 1.4.3 Calculate what your monthly payment will be. (3)
- 1.4.4 How else could you pay for this plane ticket? (1)
- 1.5 You need pocket money for your holiday. You have decided you want £500 to spend. The exchange rate is £1 = R 12,56.
Calculate how much money you need to save to get £500. (2)

QUESTION 2

Sivu buys beads wholesale and makes beaded jewellery and beaded traditional clothing, which she sells at a craft market. The following invoice shows what she bought one day.

BEAD PARADISE: for all the beads, string and material you will ever need.			
Invoice No. 23521		Date: 18/3/12	
Quantity	Description	Unit Price	Amount
6 kg	Glass beads	R56,00/kg	
100	Clay Beads	R1,80 ea.	100 x 1,80
150	Wooden Beads	R1,85 ea.	
175	Brass Beads	R2,50 ea.	
2 Rolls	String	R45,00/roll	2 x 45
20 metres	Linen	R57,00/m	
	Odds and Ends	R48,00	1 x 48
Sub-Total			
14% VAT			
Total			

2.1 Using ANNEXURE A complete the Amount column for the table above. Remember to work out and add the 14% VAT before working out the total on the invoice. (10)

2.2 Sivu has fixed costs of R375 every month. Her other expenses are for the materials she uses to make her jewellery and beaded traditional clothing. One month she decided to keep a record in table form of all her expenses and sale of jewellery to see how her business was doing.

Number of items sold	0	10	20	30	40	100	150	200
Expenses	375	425	475	525	575	875	1 125	1 375
Income	0	150	300	450	600	1 500	2 250	3 000

2.2.1 Using the data from the table draw a line graph showing Sivus expenses and a graph showing her income on the same set of axes. Use ANNEXURE B to plot your graphs. (7)

2.2.2 Using your graphs work out how much Sivu must sell to break even. (2)

2.2.3 Calculate how much profit Sivu made this month, if she sold 200 items. (2)

2.2.4 With the use of the graph find out how many items she must sell to have an income of R1 800 for the month. (2)

2.2.5 With the use of the graph, find out what Sivus total expenses will be if she makes 180 items. (2)

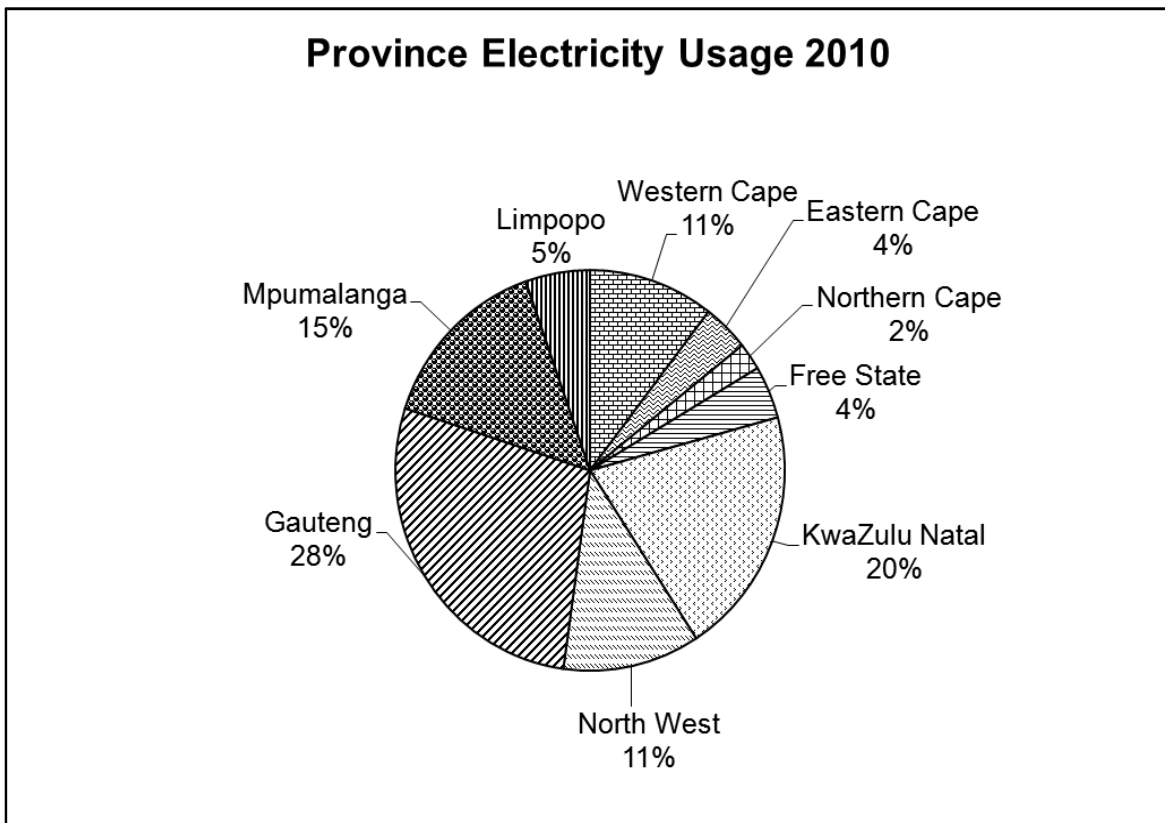
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QUESTION 3

Statistics South Africa published the following information on their website:

Electricity used by each province during 2010 [in gigawatt hours (GWh)]								
Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu Natal	North West	Gauteng	Mpumalanga	Limpopo
25 983	9 449	4 724	10 054	47 243	25 984	66 140	35 432	11 811

A pie graph to illustrate this information is given below:



- 3.1 Write the amount of electricity used by the Eastern Cape, rounded off to the nearest thousand. (1)
- 3.2 3.2.1 Which province used the most electricity during 2010? (1)
- 3.2.2 What percentage of electricity did this province use? (1)
- 3.3 Which province(s) used 2% of the electricity during 2010? (2)
- 3.4 Calculate the total number of gigawatt hours of electricity used by the whole of South Africa in 2010. (2)
- 3.5 What is the difference in the number of gigawatt hours used by the Western Cape and KwaZulu Natal? (2)

- 3.6 Why do you think there is such a larger difference in usage of electricity between Gauteng and the Eastern Cape? Give TWO valid reasons. (2)
- 3.7 The table below shows the ESKOM HOMEPOWER, non-local authority rates which gets used to charge people for electricity when they live outside the local municipalities

		Energy Charge Cents per kWh	Environmental levy charge Rand per day
Block 1	≤ 50 kWh	60,80	2,28
Block 2	51 – 350 kWh	64,39	2,28
Block 3	351 – 600 kWh	84,76	2,28
Block 4	>600 kWh	93,18	2,28

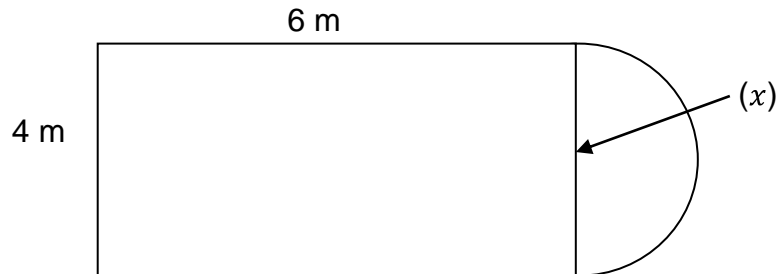
- 3.7.1 If Oakley Farm used 49,5 kWh of electricity last month (30 days), how much would they have to pay for their electricity? (Assume the month has 30 days.) (3)
- 3.7.2 The next month Oakley Farm used 65,75 kWh of electricity (31 days). How much are they going to have to pay this month? (4)
- 3.7.3 What do you think the environmental levy charge is for? (1)

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QUESTION 4

Mr Tshabala has been asked to hand in a quote for the work required in Mrs Smith's new house before work can start.

The lounge is the following shape:



4.1 What is the length of (x) ? (1)

4.2 What is the perimeter of the lounge? (4)

Use the formula: Perimeter = $2l + b + \frac{2\pi r}{2}$

Let $\pi = 3,14$ (4)

4.3 What is the floor area of the lounge?

Use the formula: Area = $l \times b + \left(\frac{\pi r^2}{2}\right)$

Let $\pi = 3,14$ (4)

4.4 If the wood for the floor and the sanding and varnishing of the floor costs R265/m², how much will it cost to lay, sand and varnish the lounge floor? (2)

4.5 The skirting board around the perimeter will have to be replaced. How much will this cost if the wood costs R55/m (sanded and varnished)? (2)

4.6 Mr Tshabala knows that with 3 labourers working on the job it will take 15 hrs. The labourers are paid R65 per hour each. How much will the labour cost be to do this job? (3)

4.7 What will the total cost be to Mr Tshabalala? (4)

4.8 Mr Tshabala will add 65% to the cost to cover his business costs and give him a profit for his business. How much profit is this? (2)

4.9 What will be the total cost of the quote for Mrs Smith? (3)

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QUESTION 5

Recently a survey was done at two small businesses in town. One of the things recorded was the monthly salaries of the people employed.

Monthly salaries of people employed (Rand)												
Joe's Fashions	2 200	2 400	2 400	2 600	2 800	2 800	2 600	2 200	2 300	2 500	2 500	2 700
Mpho's Factory	2 300	3 500	1 900	2 200	2 600	3 100	2 800	2 700	3 000	1 500	2 000	2 400

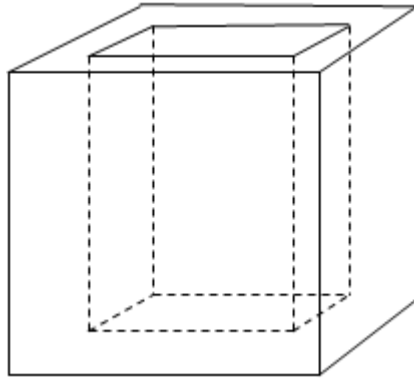
- 5.1 Calculate the mean salary for both businesses. (2 x 3) (6)
- 5.2 What is the range for each company? (2 x 2) (4)
- 5.3 Calculate the median for both businesses. (2 x 2) (4)
- 5.4 Calculate the mode for each company. (2 x 2) (4)
- 5.5 Both businesses claimed to be the better salary payers. Which company do you think pays the best salaries? Use the calculations you have just done to support your answer. (3)
- 5.6 In which company would you prefer to work if you are starting 'at the bottom' and you will be getting the minimum salary? Explain your choice. (2)
- 5.7 In which company would you prefer to work if you were a manager earning a salary close to the maximum? Explain your choice. (2)

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QUESTION 6

Mpho's Factory has decided to manufacture rectangular concrete dustbins for the Municipality. Below is a scale drawing of the dustbin and the real life measurements are given.

Outside height = 1 m
 Outside length = 1 m
 Outside width = 50 cm



6.1 Measure the outside height of the bin in the drawing. (1)

6.2 Write down the scale of the drawing of the bin. (3)

6.3 The dustbin is made of concrete that is 5 cm thick all the way round. That means that the inside measurements are as follows:

Inside height = 95 cm
 Inside length = 90 cm
 Inside width = 40 cm

Calculate the inside volume of the dustbin. Give your answer in m^3 .

Use the formula: $\text{Volume} = l \times b \times h$ (3)

6.4 Calculate the volume of concrete needed to make ONE dustbin. Give your answer in m^3 . (Hint: calculate the volume of the whole dustbin and take away the inside volume.) (5)

6.5 If concrete costs R255,50 per m^3 , how much will it cost to make ONE dustbin? (3)

6.6 Concrete is heavy, so the municipality has asked the company to make plastic dustbins the same shape and size as the concrete ones. If the plastic used costs R185,95 per m^3 , how much will it cost to make ONE plastic dustbin? (3)

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TOTAL: 150

ANNEXURE A

QUESTION 2.1

NAME: _____

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Quantity	Description	Unit Price	<i>Amount</i>	
6 kg	Glass beads	R56,00/kg		
100	Clay Beads	R1,80 ea.	100 x 1,80	R 180,00
150	Wooden Beads	R1,85 ea.		
175	Brass Beads	R2,50 ea.		
2 Rolls	String	R45,00/roll	2 x 45	R 90,00
20 metres	Linen	R57,00/m		
	Odds and Ends	R48,00	1 x 48	R 48,00
Sub-Total				
14% VAT				
Total				

ANNEXURE B

QUESTION 2.2.1

NAME: _____

SIVU'S BUSINESS

Expenses / Income																						
		Number of Items																				