Province of the
EASTERN CAPE
EDUCATION

CHIEF DIRECTORATE – CURRICULUM MANAGEMENT

GRADE 12 LEARNER SUPPORT PROGRAMME

REVISION AND REMEDIAL TEACHING INSTRUMENT:
QUESTIONS AND ANSWERS

SUBJECT: MATHEMATICAL LITERACY – FIRST PAPER

June 2009

This document consists of 17 pages.

Strictly not for test/examination purposes

INSTRUCTIONS AND INFORMATION

1.   This question paper consists of SIX questions. Answer ALL the questions.

2.   Number the answers correctly according to the numbering system used in this question paper.

3.   An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.

4.   ALL the calculations and steps must be shown clearly.

5.   ALL the final answers must be rounded off to TWO decimal places, unless stated otherwise. Do NOT round off until you get to the answer.

6.   Start EACH question on a NEW page.

7.   Use ANNEXURE A to answer QUESTION 3.1.7 a and b and ANNEXURE B to answer QUESTION 3.2.1.

8.   Write neatly and legibly.

QUESTION 1

1.1   Complete the following:

1.1.1   Write $\dfrac{125}{150}$ as a percentage   (2)

1.1.2   Convert 0,375 to a percentage   (2)

1.1.3   Complete:

$$75\% = \dfrac{\quad}{20}$$ (2)

1.1.4   Increase R150,00 by 25%   (3)

1.2   Calculate the following:

1.2.1   12 x 5 + 4 x (10 – 4)   (2)

1.2.2   0,65 + 2,94 ÷ 0,27   (2)

1.2.3   46% of 580 kg of beef   (2)

1.3

A furlong is an old unit used to measure distance. It is still used in horse racing today. One furlong is 220 yards.

1.3.1   What is the distance, in metres, of a seven furlong horse race? **(1 furlong = 220 yards ; 1 yard = 0,9144 metres)**   (3)

1.3.2   Write the answer to QUESTION 1.3.1 in kilometres correct to one decimal place. **(1 km = 1 000 m)**   (2)

1.4   Sibosiso would like to prepare the Danabaai fishdish with a herb sauce using the recipe provided. The measuring utensils Sibosiso has uses only metric units.

Danabaai fishdish with herb sauce

Ingredients:
¾ ounce parsley   10 basil leaves
2 spring onions   12 fluid ounce milk
A pinch of salt   2 tablespoons butter
2 tablespoons flour   1½ pound hake fillet
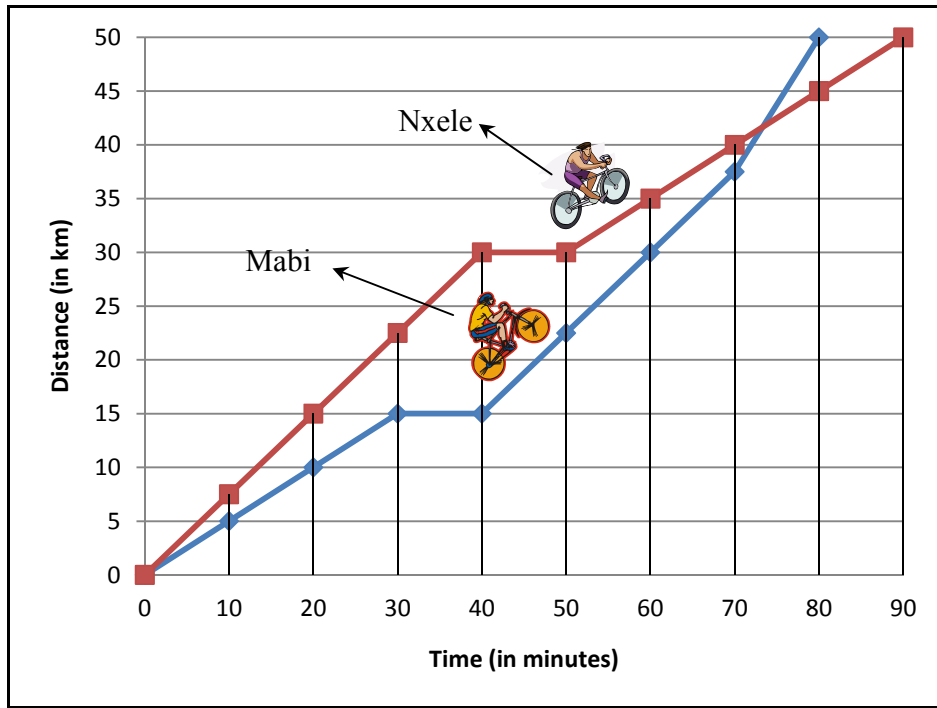5 ounces grated Parmesan cheese

Method:
Place herbs, onions, milk and salt in a blender. Melt butter and flour in saucepan. Add blended mixture. Arrange fish in baking dish, cover with sauce and top with cheese. Bake until fish is cooked through.

1.4.1   He has a kitchen scale calibrated in grams and kilograms. How many grams of parsley will he need?
(1 ounce = 28,350 g)   (2)

1.4.2   How much hake should he weigh for the recipe?
(1 pound = 453,6 g)   (2)

1.4.3   How much milk will he need?
(20 fluid ounces = 0,568 ℓ)   (4)
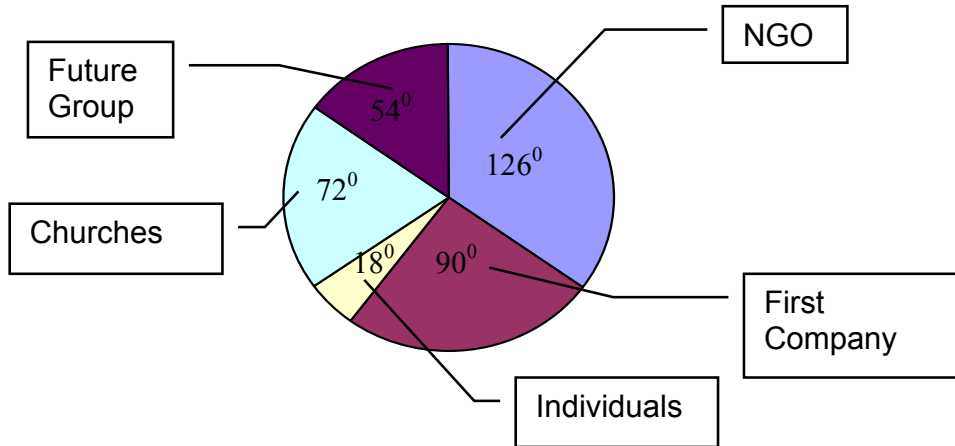
[28]

QUESTION 2

2.1 The graph below shows Mabi's and Nxele's bicycle race of 50 km. They were allowed to take only one 10 minute break during the entire race.

Use the graph to answer the following questions.

2.1.1 (a) How long does Mabi take to cover 30 km? (1)
      (b) How long does Nxele take to cover 30 km? (1)

2.1.2 Calculate the average speed in km/h for the first 20 minutes for:
      (a) Mabi (3)
      (b) Nxele (3)

      Use the formula: Average speed = ——

2.1.3 Who was faster during the first 20 minutes? (1)

2.1.4 If the race started at 7:40 am, at what time did Mabi take a break? (2)

2.1.5 How many minutes did Mabi take to finish the race? (1)

2.1.6 How many minutes did Nxele take to finish the race? (1)

2.1.7 Who was faster towards the end of the race? (1)

2.1.8 Who won the race? (1)

2.2   The pie chart given below shows the donations made to a cancer research centre for a particular year. The total donations received was R540 000. The donations are represented as sectors showing their measurements of angles.   (1)

2.2.1   Use the angles given on the chart to calculate the values (a), (b), (c), (d) and (e) in the table given below.

DONORS	SECTOR ANGLES	PERCENTAGE (%)	Actual Amount (Rands)
Future Group	54^0	15	(a) ………
First Company	90^0	(b) …………	135 000
Churches	72^0	20	(c) ………
NGOs	126^0	(d) ……………	189 000
Individuals	18^0	5	(e) ………

                                                    (5 x 2)   (10)

2.2.2   The cancer centre required R720 000 for that year.
        (a)   How much money was the centre short of?   (2)
        (b)   If the centre reduced expenses by 25% would the donation be enough to meet its expenses?
                (Show all working)   (4)

                                                        [31]

QUESTION 3

3.1

> Jonathan and a friend decided to open a restaurant. Their expenses will be buying food, paying salaries, paying electricity and water. The income they earn in the restaurant needs to pay for all of these costs and they also need to make profit at the end of the month. Their expenses are as follows:
>
> - Rates, electricity and water amounts to an average amount of R5 000,00 per month.
> - Salaries for a restaurant manager, 2 chefs, 4 waiters and 2 kitchen assistants amounts to an average wage bill of R6 222,22 per person per month.
> - Insurance is about R3 000,00 per month and security is R1 200,00 per month.
> - The chef estimates the cost to make one meal to be R12,00.
> - The average price of a meal is R80,00 per person.
>
>

3.1.1   How much do they have to budget each month for salaries?   (2)

3.1.2   The municipality charges them R1 798,00 per annum for rates and taxes. How much would they pay per month?   (2)

3.1.3   What is the monthly payment for water and electricity?   (2)

3.1.4   The fixed cost for the restaurant is approximately
         R65 200,00 per month. To calculate the total monthly cost (**TC**)
         the owner uses the following formula:

         **TC = 65 200 + (*n* x 12) where *n* represents the number of
         meals sold per month**

         Use this formula and calculate the total expenses they will have
         if they served 915 customers in one month.   (3)

3.1.5   To calculate the income **(I)** of the restaurant Jonathan uses the
         following formula:

         **I = *n* x 80 where *n* represents the number of meals sold per
         month**

         Use this formula to calculate the income for the restaurant when
         915 customers were served.   (2)

3.1.6   Did they make enough money to cover all the expenses?   (1)

3.1.7   The table give below shows the income and expenses for
         different numbers of meals sold.

No. of meals sold	Income (R)	Expenses (R)
0	0	65 200
750	60 000	74 200
1 000	80 000	77 200
1 250	100 000	80 200
1 500	120 000	83 200

   (a)   Use the table given above to draw a line graph of the
          number of meals sold and the expenses. (Use the graph
          paper given in ANNEXURE A at the end of this paper.)   (3)

   (b)   Use the table given above to also draw a line graph of the
          number of meals sold and the income on ANNEXURE A
          at the end of this paper.   (3)

   (c)   Use the graph to determine the minimum number of
          meals to be sold in order to make a profit.   (1)

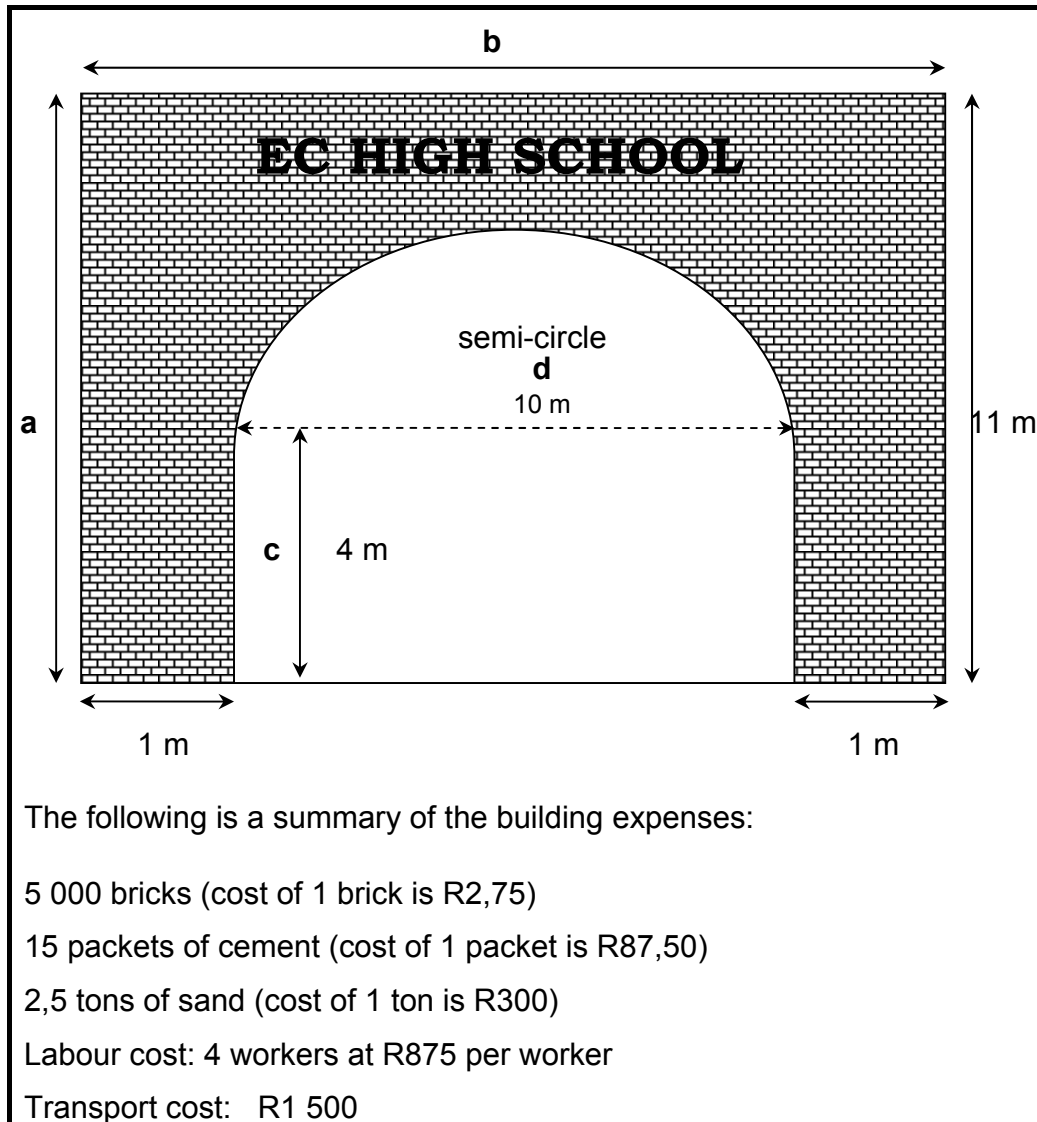3.2   Jonathan summarised the quarterly profits as follow:

Month	Profit
January − March	R 10 000
April − June	R 27 500
July − September	R 17 750
October − December	R 35 000

    3.2.1   Use the axis on ANNEXURE B and draw a bar graph to show the profits for these quarters. (6)

    3.2.2   In which quarter was their profit the least? Give possible reasons for this slow-down in sales. (2)

    3.2.3   In which quarter was their profit the most? (1)

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QUESTION 4

EC High School decided to build an entrance in the shape of an arch.
The shape and dimensions of the arch is given below.

The following is a summary of the building expenses:

5 000 bricks (cost of 1 brick is R2,75)

15 packets of cement (cost of 1 packet is R87,50)

2,5 tons of sand (cost of 1 ton is R300)

Labour cost: 4 workers at R875 per worker

Transport cost: R1 500

4.1   Calculate the estimated cost of building the arch.   (6)

4.2   Use the values given on the figure to answer the following:

      (a)   Calculate the area of the rectangle with sides **a** and **b**.
           Use the formula: **Area of the rectangle = a x b**   (2)

      (b)   Calculate the area of the semi-circle.
           Use the formula: **Area of semi-circle = ½ πr^2, where π
           = 3,14**   (2)

       (c)   Calculate the area of the rectangle with the sides **c** and **d**.
                Use the formula: **Area of rectangle = c x d**   (2)

       (d)   Calculate the area of the bricked surface as shown in the
                figure.   (2)

4.3   Only the bricked surface of the arch shown on the figure needs to be
      varnished. One litre varnish can cover an area of 2,11 m².
      How many litres of varnish are needed?   (2)

4.4   The cost of 1 litre of varnish is R28,50. Calculate how much all the
      varnish will cost.   (2)

4.5   The school intends taking out a bank loan to cover the building and
      painting of the arch. The bank charges simple interest at 15% per
      annum. How much will it cost the school if the amount is paid back over
      two years?

      Use the formula: **A = P (1 + i x n) where:**
      P = the amount of the loan
      n = the number of years
      i = the interest per annum as a decimal value   (3)

                                                           [21]

QUESTION 5

5.1   With the Soccer World Cup approaching in 2010, street soccer is
      becoming very popular in South Africa and various teams get together
      and are now playing these games in a structured manner. The
      following team competed in the Homeless World Cup Street Soccer
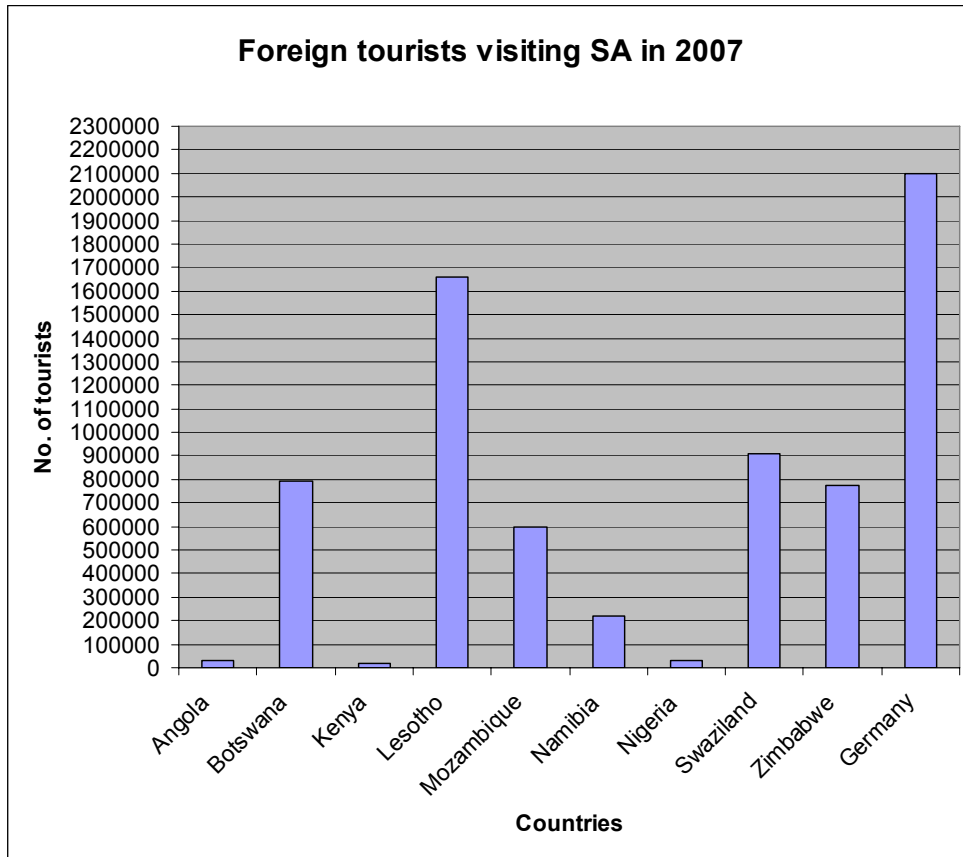   tournament held in Melbourne in December 2008.

> The height (in cm) of the players are as follow:
> 140; 153; 158; 141; 147; 170; 163; 145;
> 169; 148; 159; 162; 153; 141; 162; 153

> The age of the players are as follow:
> 24; 20; 29; 23; 25; 32; 19; 21;
> 23; 28; 31; 21; 23; 35; 40; 38

5.1.1   Determine the mean height.   (3)

5.1.2   Determine the median height.   (2)

5.1.3   What is the mode for the players' heights.   (1)

5.1.4   What is the mean age per player for this team?   (3)

5.1.5   Determine the median ages.   (3)

5.1.6   What is the mode for the players' ages?   (1)

5.2

To prepare for the 2010 World Cup Soccer, a group of hotels decided to find out how many tourists visited South Africa in 2007. They obtained the following information from Stats SA:

Foreign tourists visiting SA in 2007

5.2.1   From which African country did the most visitors come?   (1)

5.2.2   From which country did South Africa receive the most tourists?   (1)

5.2.3   From which country did South Africa receive the least tourists?   (1)

5.2.4   From how many countries did South Africa receive more than 800 000 visitors?   (1)

5.2.5   What is the difference in the number of visitors received from Germany and Botswana?   (3)

5.2.6   How many people in total visited South Africa from Botswana, Mozambique and Swaziland?   (4)

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QUESTION 6

> Study the route map given below carefully and **use only the roads and places** given on the map to answer the questions.
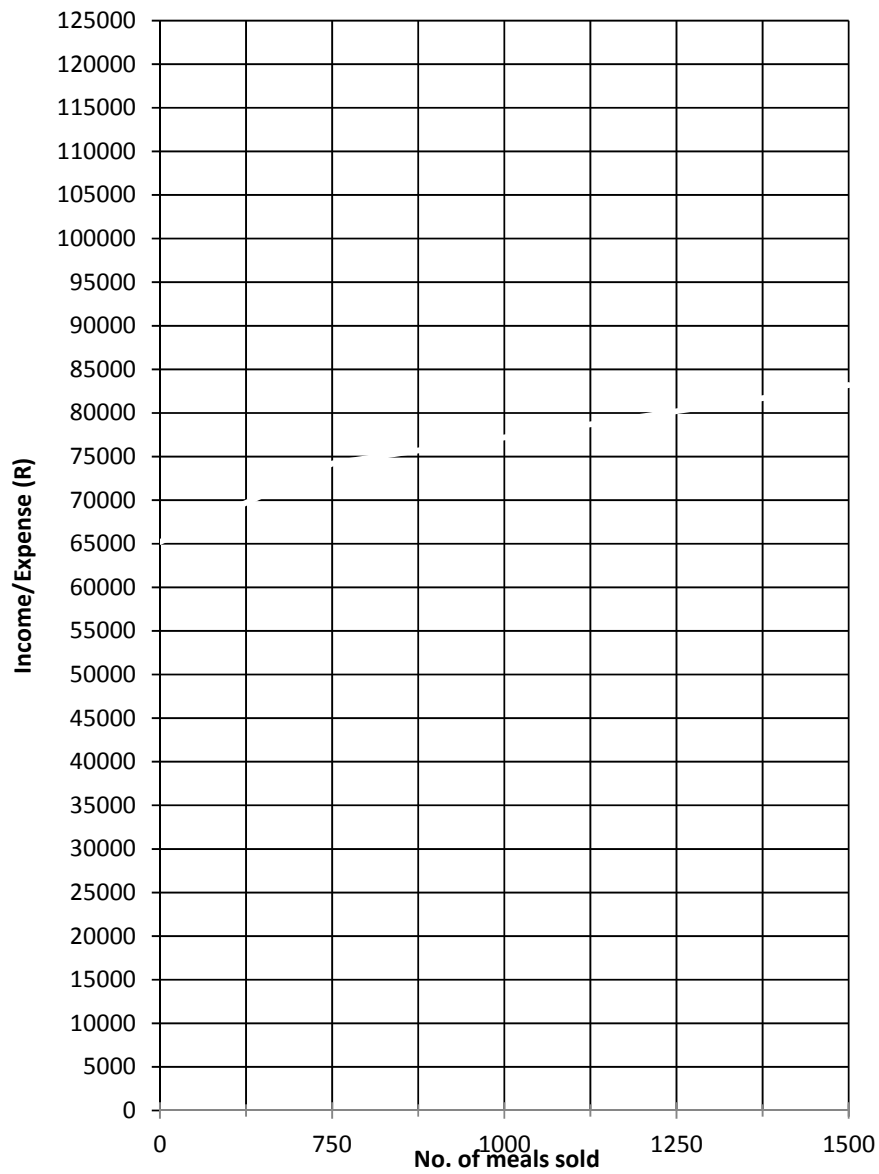

6.1   Name of the town on the N4.   (1)

6.2   Which is the shortest route from East London to Bloemfontein?   (1)

6.3   The distance from East London to Bloemfontein is 594 km.
       Shyam's company pays him R2,25 per km. How much can he claim
       from his company?   (2)

6.4   Shyam plans to drive to Cape Town from his home in East London.
       Which is the shortest route he can use?   (1)

6.5   How many towns will he pass through on his journey from East London
       to Cape Town if he takes the shortest route along the coast?   (1)

6.6   The distance from East London to Cape Town is 1 042 km.

       (a)   Shyam's car can travel 12 km with 1 litre of petrol. How
             many litres of petrol will he use for his entire journey from
             East London to Cape Town? Give your answer correct to
             one decimal place.   (2)

       (b)   The cost of a 1 litre of petrol is R9,17. How much will he
             spend on petrol?   (2)

       (c)   If he spends R45,40 on lunch and R18,00 on toll fees,
             what will be his total expenses (including petrol) for this
             journey to Cape Town?   (2)

       (d)   His company pays him R2,25 per km. Will he gain or lose
             during his journey? Explain.   (3)

6.7   Describe the direction to take to Johannesburg from East London.   (1)

6.8   Describe the shortest route that one can take when travelling from Port
      Elizabeth to Kimberley.   (2)

                                                                                        [18]

                                                                     TOTAL: **150**

ANNEXURE A

Income and Expenditure for Jonathan's Restaurant

ANNEXURE B

Jonathan's summarised Quarterly Profit