

Hillcrest High School
Mathematical Literacy

Grade 11

Paper 1

May 2013

Marks:100

Time: 120min

Instructions:

- 1) Number your questions correctly, according to the number system used in the question paper.
- 2) A calculator may be used for any question, unless otherwise stated.
- 3) Show all calculations and working out to gain maximum marks.
- 4) All final answers must be rounded off to TWO decimal places.
- 5) Units of measurement must be indicated where applicable.
- 6) Write your teachers name on your answer paper.
- 7) Write neatly and space your work out properly, leaving a line between each answer.

Question 1

Simplify fully. Show all working where necessary.

Garry is a South African student traveling across America. Help him with the following problems that he faces on his journey.

- 1.1) Garry fills his car with petrol at the service station. He is charged \$44.80. If 1 gallon of fuel costs \$2.24, how many gallons did he put into the cars tank? (2)
- 1.2) How much did Garry spend on fuel in rand if \$1 = R9.23? (2)
- 1.3) Garry plans on following Route 66 through the American outback. This is a journey of 2578 miles. If 1km = 0.6215 miles, how many kilometers is the journey? (2)
- 1.4) If Garry's car travels 600 km on a single tank of fuel, how many times would he have to fill up on his trip? Round off your answer to the nearest whole number. (2)
- 1.5) Garry has three bags of luggage. The two bigger bags each weigh 20 pounds. The smaller bag weighs 8 pounds 4 ounces. If 1 pound = 0.4536kg and 1 ounce =28.4 grams, what is the total weight of his luggage? (4)
- 1.6) Garry spends much of his time traveling through the desert where temperatures regularly reach 48 degrees Celsius. Use the following formulae to calculate the temperature in degrees Fahrenheit. $F=(1.8 \times C) + 32$ (2)
- 1.7) Garry's trip takes 6 months, 3 days 23 hours and 4 minutes. How long was his trip in minutes? (6 months: use 3 months with 30 days and 3 months with 31 days) (5)

.....(Total19).....

Question 2

Mrs. Moolman is a florist who runs her business in a rented shop from Mondays to Saturdays every week. She keeps a careful record of all her expenses. The following table shows her weekly expenses.

Mrs. Moolman's weekly expenses

Week	1	2	3	4
Wages for herself	R640,00	R640,00	R640,00	R640,00
Rental	R3000,00	R3000,00	R3000,00	R3000,00
Water and electricity	R113,60	R132,60	R146,40	R151,60
Flowers	R4740,00	R4912,00	A	R8500,00
Miscellaneous material	R93,60	R113,20	R123,60	R174,20
Telephone expenses	R331,60	R512,20	R712,40	R1042,60
Municipal services	R89,60	B	R133,60	R147,00
Total expenses	C	R9420,80	R10 927,00	D

- 2.1) Calculate the missing values A, B, C, D. (8)
- 2.2) Work out the average expense per day on telephone calls for the 4 weeks. (3)
- 2.3) Which expense contributes most to the total expenses? Why do you think that this is the case? (2)
- 2.4) The profit in week 3 was R9120,00. Calculate Mrs. Moolman's income in week 3. Use the formulae: profit = income – expenses. (2)
- 2.5) Calculate the profit margin for week 3.
Use the formulae: Profit margin = $\frac{\text{income} - \text{expenses}}{\text{expenses}} \times 100\%$ (3)
- 2.6) Explain the trend of the businesses financials over the past four weeks. (1)

2.7) The Table below shows the transaction charges for a bank account.

Transaction Type	Charges
Any ATM cash withdrawal	R3,00 for the first R100 and R0,90 for each successive R100 or part thereof
Local branch	R16,00
ATM funds transfer	R3,10
ATM balance enquiry	R 2,50
ATM statement	R2,50

2.7.1) What are the transaction charges for a cash withdrawal of R825 from an ATM? (3)

2.7.2) Mrs. Moolman made the following transactions:

3 ATM cash withdrawals of less than R100

1 local branch counter cash withdrawal

3 ATM fund transfers

Calculate the total charges for these transactions. (4)

.....(Total26).....

Question 3

Buhle buys beads from a wholesaler and makes beaded traditional clothing. She sells these clothes at a craft market. The following invoice shows what she bought on one day.

Table 1

Bead Paradise: for all the beads, string and material that you will ever need.				
Invoice number: 98776 Date: 17/06/2013				
Quantity	Description	Unit Price	Amount	
10 kg	Glass beads	R61, 60 per kg	10 X R61,60	A
150	Clay beads	R1,95 each	100 X R1,95	R195,00
200	Wooden beads	R2,05 each	B	R410,00
225	Brass beads	R3,50 each	225 X R3,50	R410,00
3 Rolls	String	R55,00 per roll	2 X R55,00	R110,00
25 Meters	Linen	R67,00 per meter	25 X R67.00	R1675
	Odds and Ends	R57,00	1X R57,00	R57,00
		Sub-Total		C
		14% VAT		R539,07
		Total		D

3.1) Using the table above and showing all working, complete the totals for:

- A)
- B)
- C)
- D)

(8)

3.2) Buhle has fixed costs of R650 every month. Her other expenses are from the materials that she uses to make her beaded traditional clothing. One month she decides to keep a record in table form of all her expenses and beaded traditional clothing to see how her business is doing.

Table 2

Number of items sold	0	10	20	30	150	200
Expenses	R650	R1100	R1550	R2000	R7400	R7650
Income	0	R850	R1700	R2550		R12750	R17000

3.2.1) Using the data from the table, draw a line graph showing Buhle's expenses and a graph showing her income on the same set of axis. Label your graphs 'income' and 'expenses'. Use the axis provided to plot your graph. (8)

3.2.2) Refer to your graph to answer the following questions:

- A) Clearly indicate the break-even point on your graph using the letter 'Y'. (2)
- B) Define the term 'break-even' point. (2)

3.2.3) Calculate how much profit Buhle made this month, if she sold 200 items. (3)

3.2.4) Express the quantity of clay beads to wooden beads from table 1 in it's simplest ratio. (2)

.....(Total 25).....

Question 4

The current price to enter uShaka marine world is R120 per person for the day with all entertainment being free once inside. Ushaka is however considering a new fee structure. Consider each of the provided tables to help you answer the questions that follow: (Note: the price of parking is not included as part of either fee structure.

Parking at Ushaka per vehicle

0 -1 hour	R10
1-2 hours	R15
2-3 hours	R20
3-4 hours	R25
4-5 hours	R30
5-6 hours	R35
6 + hours	R50

Cost to enter uShaka per person

Time in uShaka	Cost to be in uShaka
0-2 hours	R70
2-4 hours	R80
4-6 hours	R90
6-8 hours	R100
8-10 hours	R120

Lazy River	R6
Kamakazi Drop	R10
Tube Dip	R3
Snake Spin	R8
Turtle Roll	R7
Dolphin Show	R15

Rides and Entertainment per person

- 4.1) What would a family of four be charged who make use of the paid parking for seven hours and visit the park for 6 hours before uShaka implement any fee changes? (3)
- 4.2) Work out the average price per person, including the parking, as mentioned in question 4.1. (2)
- 4.3) What would the same family pay after the new fee structure was implemented if each member entered the park, rode the Lazy River twice, watched the dolphin show, rode the snake spin once, slid down the kamakazi drop twice while parking and visiting the park for the same length of time as stated in question 4.1 ? (4)
- 4.4) Work out the average price per person after the increase was implemented. (2)
- 4.5) Work out how more much the family had to pay in total as a percentage after the new fee structure was implemented. (Round off to the nearest percent) (2)

.....(Total13).....

Question 5

Donald is a book keeper who receives a gross salary of R16 765.25 per month. Every month he pays PAYE (pay as you earn) tax of 16%, contributes 8% of his salary to a pension fund and pays 9.5% of his salary to a medical aid.

His pay slip looks as follows:

Date: 2013/02/25					
Basic Salary	R16 765.25		Deductions	PAYE	R2682,44
				Pension	(A)
				Medical aid	R1592,70
				Total Deductions	R5616,36
				Net Pay (spending money after all deductions)	(B)

5.1) Work out the amounts for A and B. Show all working. (4)

Donald draws up the following budget to help with his expenditure for the month.

Item	Monthly Expenditure
Bond	R3200
Water and Electricity	R1050
Car repayment	R995
Groceries	R2900
Clothing	R500
Pertol	R600
Insurance	R465
Entertainment	R350

5.2) How much can Donald afford to save each month? (3)

5.3) The price of petrol goes up by 10.3%. Calculate the new amount he would have to spend on petrol. (3)

.....(10).....

Question 6

Sipho is in grade 9 and has saved R8000 over the past five years doing odd jobs for neighbors. He wishes to invest his savings for a period of 10 years. He considers the following two options:

6.1) Absa offers him 14% simple interest per year. Using the simple interest formulae:

$$A = p(1 + in) \tag{3}$$

6.2) Nedbank offer him 12% compound interest per year. Using the formulae:

$$A = p(1 + i)^n \tag{3}$$

6.3) List the option that Sipho should choose. How much more money does he make with his chosen option? (1)

.....(7).....

END