

HILLCREST HIGH SCHOOL



Grade 11 Mathematical Literacy Exam Paper 2

June 2018

MARKS: 100

TIME: 2 hours

INSTRUCTIONS

1. This question paper consists of 5 questions. Answer ALL the questions.
2. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
3. Show ALL calculations clearly. Answers only will NOT necessarily be awarded full marks.
4. Round off ALL final answers to TWO decimal places, unless stated otherwise.
5. Indicate units of measurement, where applicable.
6. Maps and diagrams are NOT necessarily drawn to scale, unless otherwise stated.
7. Write neatly and legibly.

QUESTION 1

Zandi is a first-year student at university. She receives a monthly allowance of R1 350,00 from her parents. She has a part-time job at the cafeteria as a waitress. The money she receives from her parents must pay for her books and library fees, food and transport costs. She finds that some months she does not have enough money for anything extra and asks if her parents can increase her monthly allowance. Her parents have asked her to prepare a three month budget for them showing her expenses as well as her income. Zandi compiles the following budget for 3 months which indicates her income and expenditure.

	July	August	September
MONTHLY INCOME	R1 781,28	R1 683,50	R1 772,12
Parents	R1 350,00	R1 350,00	R1 350,00
Part-time job at cafeteria	R431,28	R333,50	R422,12
COSTS	R1 689,47	R1 653,27	R1 721,23
Book and library fees	R219,00	R219,00	R219,00
Rent	R300,00	R300,00	R300,00
Food	R493,57	R487,55	R503,28
Transport (taxi)	R255,00	R215,00	R235,00
Telephone	R60,00	R48,00	R60,00
Toiletries	R43,25	R44,78	R38,68
Clothing	R123,55	R168,05	R165,24
Entertainment	R158,23	R135,00	R188,27
Bank fees	R36,87	R35,89	R41,76
Savings	R0,00	R0,00	R0,00
SURPLUS/(LOSS)	R91,81	R 30,23	R20,89

- 1.1 Identify any variable monthly income for Zandi. Justify your answer (2)
- 1.2 Identify any fixed monthly expenses for Zandi. Justify your answer. (2)
- 1.3 Identify any low priority expense for Zandi. Justify your answer. (2)
- 1.4 What do you think Zandi spends most of her money on? Give a reason for your answer. (2)
- 1.5 Zandi is paid R11,50 per hour for her part-time job. Show that the difference in her salary for the months of July and August is as a result of fewer hours worked in August. Justify the statement by means of calculation. (3)
- 1.6 The petrol price has recently increased from R9,72 per litre to R10,40 per litre.
 - 1.6.1 What is this percentage increase? (2)
 - 1.6.2 If Zandi's transport costs increases in the same proportion as the petrol increase, how much must Zandi expect to budget for transport over the next few months? (2)

1.7 Banking costs: The bank charges Zandi for the transactions made on her account. Banks use the following formulae to determine their fees.

	Bank Charges	Amount Charged
1	Debit Order (External)	$[R3,50 + 0,007 \times (\text{value of the transaction})]$
2	Debit Order (Internal)	$[R4,50 + 0,005 \times (\text{value of the transaction})]$
3	Cash Withdrawal (own bank)	$[R1,19 + 0,006 \times (\text{value of the transaction})]$
4	Cash Withdrawal (other bank)	$[R1,47 + 0,007 \times (\text{value of the transaction})]$
5	Monthly Service Fee	R6,00 per month
6	Monthly Ledger Fee	R7,00 per month
7	Cash Deposit Fee	No charge

Zandi pays rent using an internal debit order. Calculate the transaction fee for this payment. (2)

1.8 Calculate the transaction fees for each of the following:

1.8.1 Zandi withdraws R150 cash from another bank's ATM each weekend for a month and pays her book and library fees and rent by an internal debit order. (4)

1.8.2 Zandi deposits R200 cash from her salary earned at the restaurant each weekend for a month and draws R100 from her own bank for the first three weekends. On the fourth weekend of the month she withdraws R800 from her own bank to pay cash for her rent, library and book fees, her toiletries and food for the month. (5)

1.8.3 Compare the situations in QUESTION 1.8.1 and QUESTION 1.8.2. Which one is better of the two? Give a reason for your answer. (2)

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QUESTION 5

5. Refer to the map provided in ANNEXURE B
- 5.1 Which national road would you use to drive from Upington to Pretoria? (2)
- 5.2 When measured with a ruler, the straight-line distance between these two towns is 77,8mm. Use the scale showing 100km, to determine the actual distance between these two towns, rounded off to the nearest kilometre. (4)
- 5.3 The distance provided by Google between these two places, is given as 827.7 km. Explain the reason for the difference between this value and the answer to Question 5.2. (2)
- 5.4 Give the general direction from Upington to Pretoria. (2)
- 5.5 With reference to the map, which National Road would you estimate to be the longest? (2)

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QUESTION 4

Refer to the map and distance table provided in ANNEXURE A and answer the following questions:

- 4.1 In what general direction does the Komatie Lodge lie from Polokwane? (2)
- 4.2 Calculate the full distance in kilometres from Polokwane to the Komatie Lodge using the road via Ga Matlala. (4)
- 4.3 If you only wanted to drive on National Roads, explain the route you will drive from Polokwane to the Komatie Lodge. **Town, road and place names must be included in your directions.** (7)
- 4.4 Using the Distance Table provided in ANNEXURE A, determine the distance between Polokwane and Johannesburg. (2)

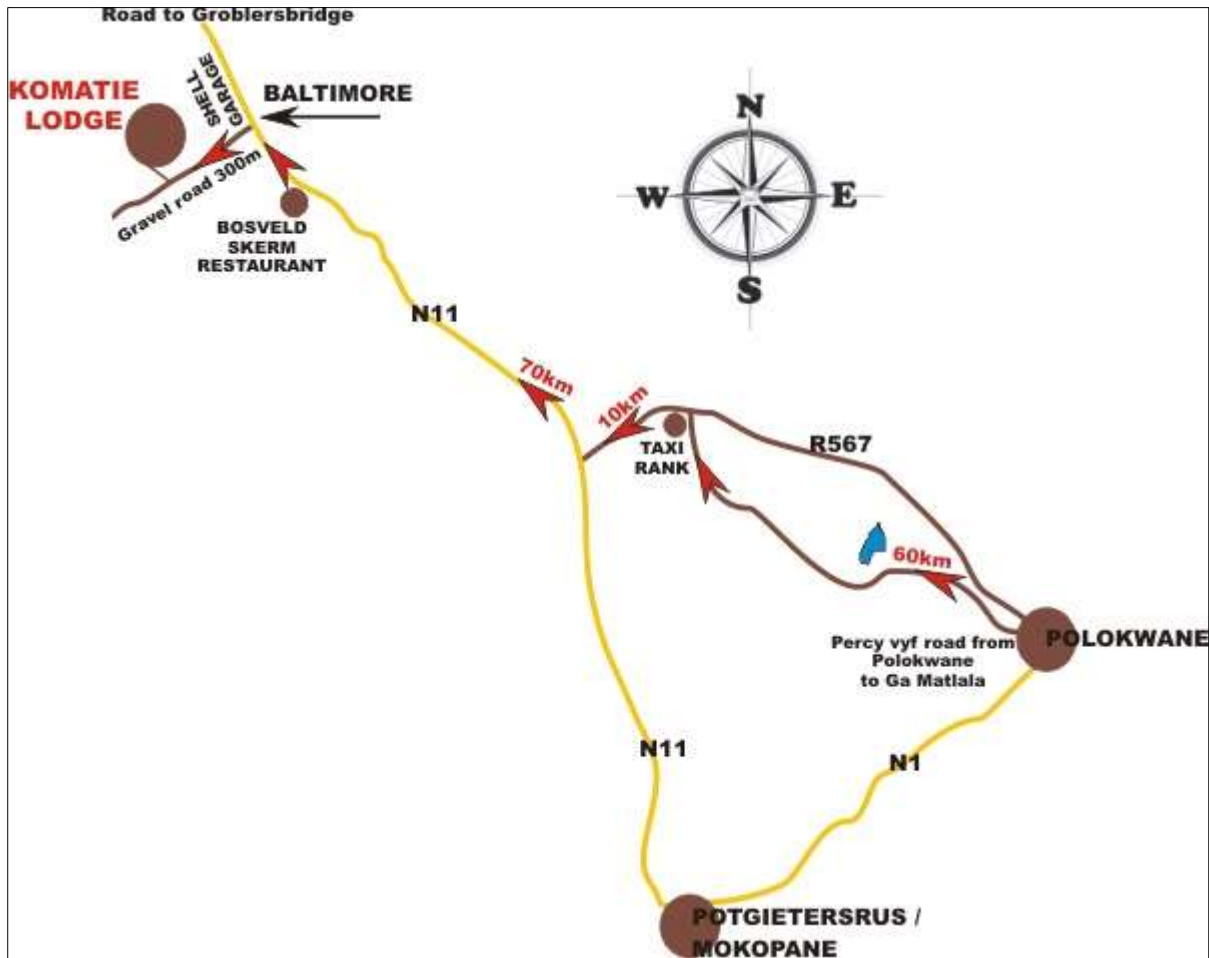
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ANNEXURE B



Map Scale is 1 : 112 00000

ANNEXURE A



Question 4.4

										Pretoria
									Port Elizabeth	1120
								Polokwane	1393	273
							Nelspruit	320	1373	342
					Mafikeng	589	565	1122	292	
				Kimberley	360	832	805	752	532	
			Johannesburg	467	273	358	331	1062	58	
		East London	992	750	1029	1214	1323	300	1050	
	Durban	667	598	842	859	689	929	927	656	
Cape Town	1660	1042	1402	960	1320	1779	1736	756	1463	
Bloemfontein	998	667	575	417	175	427	771	748	635	475

QUESTION 2

2.1 The table below shows Call-Tel's tariff increases as of 1 August 2018.

Call cost tariffs						
	Peak (per minute)		Off-Peak (per minute)		Minimum charge (per call)	
	Now	New	(Callmore Time)		Now	New
	Now	New	Now	New	Now	New
Local (0 - 50 km)	38c	None	16c	None	59c	30c
Long distance (> 50 km)	80c	72c	40c	36c	80c	72c
<small>Tariffs on calls are charged per second with a minimum charge per call.</small>						
International outgoing calls: Calls to popular set destinations						
	Peak (per minute)		Global Off-Peak (per minute)		Minimum charge (per call)	
	Now	New	(Callmore Time)		Now	New
	Now	New	Now	New	Now	New
UK	R1,70	R1,40	R1,50	R1,30	80c	72c
USA	R1,70	R1,20	R1,50	99c	80c	72c
Australia	R1,70	R1,50	R1,50	R1,50	80c	72c
Netherlands	R2,00	R1,70	R2,00	R1,70	80c	72c
India	R2,30	R1,80	R2,00	R1,80	80c	72c
<small>Tariffs on calls are charged per second with a minimum charge per call.</small>						
Rental of lines						
Monthly rental	Residential		Business			
	Now	New	Now	New		
Analogue line	R92,28	R99,92	R122,60	R132,75		
ISDN2	R195,28	R166,52	R230,50	None		
ISDN2a	R220,50	R176,40	R245,00	None		
Telkom internet	R79,00	None	R79,00	None		

Off-peak

(Callmore time):

7 pm - 7 am on weekdays, Fri

7 pm - Mon 7 am

Global Off-Peak time: 8 pm - 8 am on weekdays and Fri 8 pm - Mon 8 am

2.1.1 Mashudu has a normal analogue line for her home. What will be her monthly rental costs after the increase? (2)

2.1.2 Show the total cost of the following using the current rates (assuming these calls are all made during the week.):

2.1.2.1) a call of 40 seconds (distance 60km) at 16:00 (4)

2.1.2.2) a call of 7 minutes at 20:30 to the USA. (2)

2.1.3 When is Global Off-Peak time? (2)

2.1.4 What is the new minimum charge per minute for a call made to India? (2)

2.2 The recipe below is for a cheese and potato dish. This recipe makes 6 portions.

Cheese and potato dish	(makes 6 portions)
Ingredients	
5 medium potatoes cut in thin slices	cayenne pepper
500 ml grated cheese	2 beaten egg yolks
A pinch of salt	50 ml of cream
Pepper	2 egg beaten egg whites (must form stiff white peaks)
Method:	
Coat a suitable oven bake dish with butter and put a layer of potato slices at the bottom. Sprinkle cheese over the potatoes and season with salt, pepper and cayenne pepper. Repeat with another layer of potato slices (until everything is finished). Pour the egg yolks and cream over the layers and cover with more grated cheese. Bake for 1 hour at 180°C or until the potatoes are soft. Put the beaten egg whites on top of the potato and cheese layers and bake for a further 15 minutes at 180°C.	

2.2.1 Adapt the number of potatoes in the recipe accordingly so that it will be enough for 24 people. (3)

2.2.2 Use the formula to convert the °C to Fahrenheit : $^{\circ}F = \frac{9}{5}^{\circ}C + 32$ (2)

2.2.3 Convert the **ALL** the millilitres used in the recipe to litres. (2)

QUESTION 3

The search is on for alternatives to pesticide-greedy cotton, forest-destroying paper, polluting petrochemicals and nutritionally devoid western diets.

Hemp is thought to be one of the earliest plants cultivated for the production of textile fibre. It was only during the last century that cannabis hemp has been associated with its narcotic cousin marijuana and therefore growing it is banned in many countries. However, although industrial hemp is a cousin of the psychotropic marijuana, it is cultivated in totally different ways and therefore has different properties.

A company selling natural fibre accessories decides to introduce some hemp fibre products into its stock to cater to the environmentally conscious customer. They decide to start with selling hemp purses. Before doing so they need to do some research to see if it will benefit them financially.

NEW HEMP PURSES

- **will last a long time**
- **biodegradable**
- **will not expose you to any chemicals**
- **low environmental impact**



3.1 As hemp products are not available on whole sale in South Africa the company needs to import them. The following costs will be incurred:

- * R120 per month hemp product licence
- * R250 per month extra advertising
- * R230 shipping fee for a box of 100
- * £2,20 per purse

3.1.1 What is the shipping fee per purse? (2)

3.1.2 If the exchange rate is R11,02 to the pound, how much will each purse cost the company in Rands? (2)

3.1.3 Name the company's monthly fixed cost (s) incurred in adding these purses to their stock. (2)

3.1.4 Show that the total variable cost to the company per purse can be rounded off to R26,50. (2)

3.2 If the company wants to make a R23,50 profit on each purse, what should the selling price for each purse be? (2)

$$\text{Profit} = \text{Income} - \text{Expenses}$$

3.3 Using the information above, complete the following table by solving for A and B: (4)

No. Of purses imported	0	50	100	200
Total cost (R)	370	A	3020	5670
Total income (R)	0	2500	B	10 000

3.4 Write an equation to represent the Total Cost (C) to the company of selling 'n' number of purses. (2)

3.5 The company decides to draw a graph representing the information in the table given above.

3.5.1 Give a suitable heading for the graph. (2)

3.5.2. Using the axes provided at the back of your answer booklet, draw the graphs for Total Cost and Total Income. Remember to label each graph. (4)

3.6 Use the graphs you have drawn to read off:

3.6.1 How many purses the company will need to sell in order to break-even. (2)

3.6.2 The amount of profit they will make if they import and sell 100 purses. (2)

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