

Mathematical Literacy

Exam Practice Book

Grade 10



MATHEMATICAL LITERACY
PRACTICE TEST ONE

Marks: 40

QUESTION 1

Albert is planning to go on holiday for 10 days. While he is away from home, he will need to rent a car. The car hire company has provided him with the following information:

Daily rates (200 free km per day)					
Group	Model	0 – 9 days	10 – 15 days	Additional km	Excess
A	VW Chico	R250	R235	R1,78	R2 800
B	Toyota Corolla 1400	R285	R260	R2,30	R3 200
C	Toyota Corolla 1600	R310	R290	R2,50	R3 500
D	Renault Clio	R330	R310	R2,85	R4 000
E	BMW 320i	R550	R500	R3,68	R5 800
F	Mercedes Benz C180	R700	R650	R4,25	R6 000

1.1 Albert wants to drive a BMW. How much will it cost him to rent one for 10 days? (2)

1.2 In addition to the rental cost, there is also the cost of additional kilometres. If Albert drives a total of 3 558 km on his 10-day holiday, how much will he have to pay for the kilometres covered? (3)

In case of accidents, rental cars are protected by insurance. If you have an accident, the maximum you have to pay is the excess amount (see the last column of the table). The rest is covered by insurance.

1.3 If Albert had an accident in a BMW and the damage cost R800 to fix, what would he have to pay? (1)

1.4 If Albert had an accident in a BMW and the damage cost R10 000 to fix, what would he have to pay? (1)

1.5 The car hire company has 10 BMWs: 3 are red, 2 are white and 5 are silver. What is the probability that Albert would get a red car? (2)

1.6 What is the probability that Albert would **not** get a white car? (2)

Albert has decided that it is too expensive to rent a BMW. He would rather rent a Toyota Corolla 1400 and ensure that he does not exceed 200 km per day.

Here is Albert’s holiday budget:

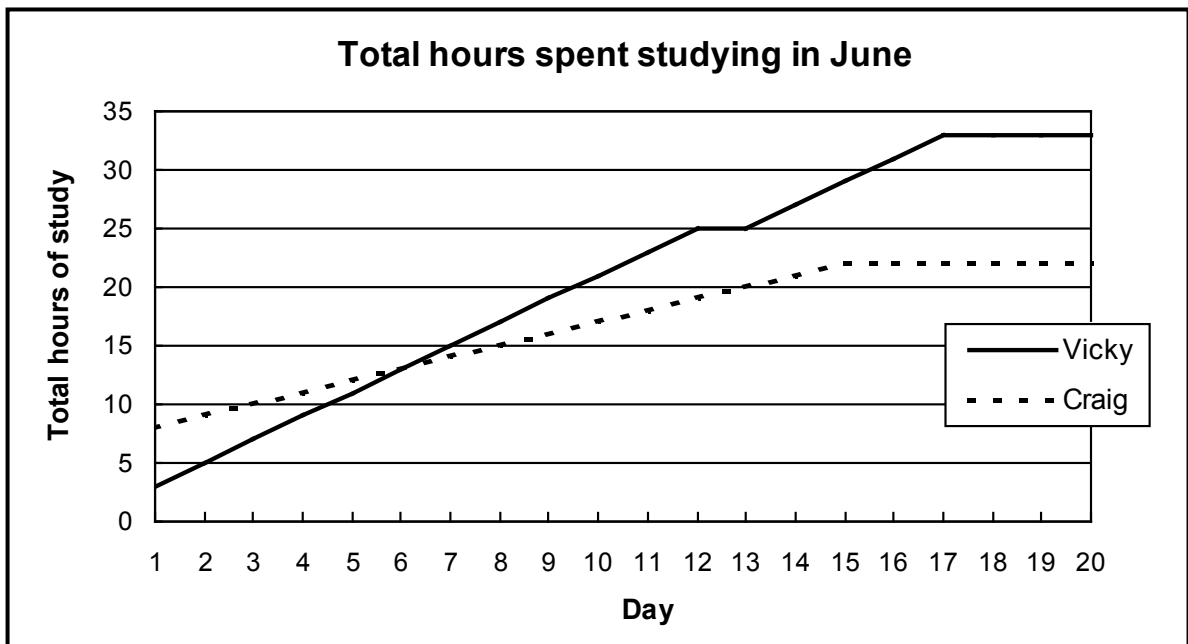
Expense	Amount
Travelling	R1 300 in total
Food	R120 per day
Hotel	R300 per day
Car	R260 per day

- 1.7 What is the total cost of the 10-day trip? (3)
- 1.8 Albert decides to budget R10 000 for his trip. How much money will he have each day for spending money (after covering his costs)? (2)
- 1.9 To finance the trip, Albert borrows R10 000 from his bank. He plans to repay the loan after 1 year. How much will he have to repay if interest is charged at 18% per annum compounded monthly? (4)

[20]

QUESTION 2

Two learners are preparing for their exams. The graph below shows the total number of hours spent studying in June.

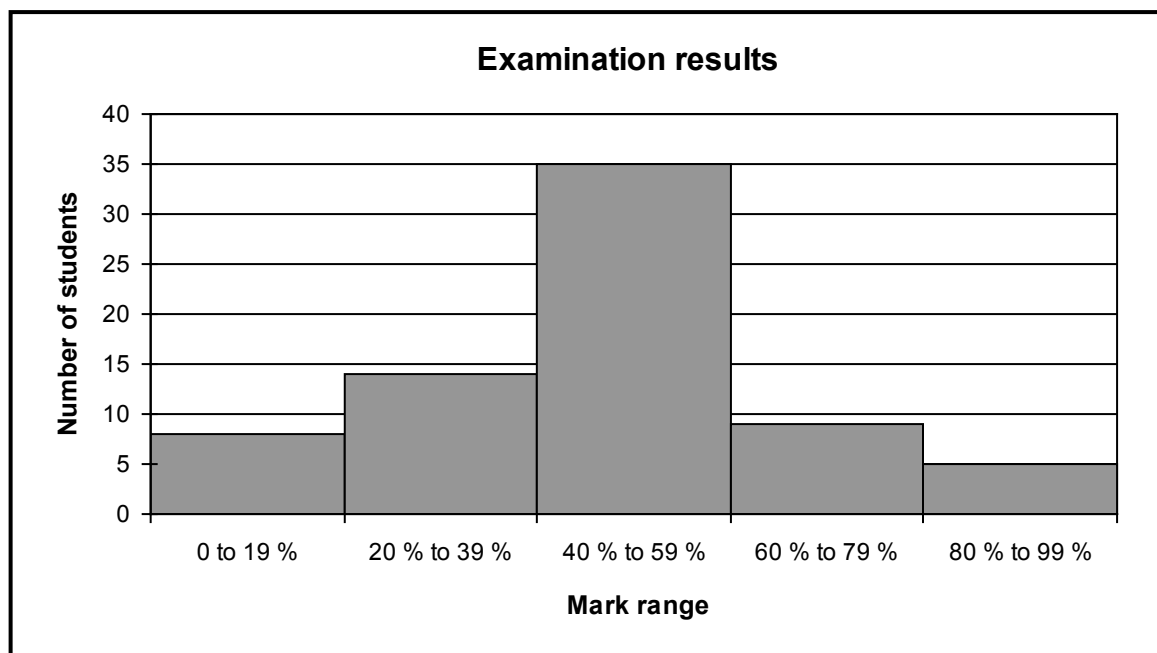


- 2.1 How many hours had Vicky studied in total by day 2? (1)
- 2.2 How many hours had Vicky been studying for on day 1? (1)

- 2.3 Hence, determine how many hours Vicky studied during day 2. (1)
- 2.4 How many hours in total did Vicky spend preparing for her exam? (1)
- 2.5 On what day did Craig stop studying? Explain how you can see this on the graph. (2)
- 2.6 How many hours did Vicky spend studying each day during the first 10 days of the month? (3)
- 2.7 On what day did Vicky overtake Craig in terms of total hours of study? (1)
- 2.8 Vicky was sick for one day and was not able to study at all. Write down the day that this occurred and explain how you can see this from the graph. (2)
- 2.9 The last day that Vicky spent studying was the day before the exam. On which day was the exam written? (1)
- 2.10 Write down an expression for the total number of hours studied by Craig, x days after day 1, if he keeps on studying for 2 hours each day. (2)

Vicky and Craig found that their preparation paid off. Some statistics for their class are shown in the graph below.

- Vicky's result: 72%
- Craig's result: 86%



- 2.11 How many learners scored over 60%? (2)
- 2.12 What is the probability that an exam paper graded 60% to 79% picked at random belongs to Vicky? (2)
- 2.13 What is the probability that an exam paper scoring 60% to 79% picked at random belongs to Craig? (1)

[TOTAL: 40 marks]

[20]

MATHEMATICAL LITERACY
PRACTICE TEST TWO

Marks: 55

QUESTION 1

Your friend, Gerald, has asked you to help him with his bank statement. He is sure there are some errors and some things just do not make sense to him. Help him by answering the questions following his bank statement shown below.

Mulligan Bank									
Mr Gerald de Villiers 43 Rand Street Cape Town 7700			Your statement for January 2009				Account number 23456799 Claremont Branch SWIFT address: SBZA TY 66		
Date	Details	Debit		Credit		Fee		Balance	
1/1/09	Opening Balance							12 783	56
3/1/09	Deposit			1 000	00	15	00	13 768	56
5/1/09	Payment: Con Cars	876	45			2	50	12 889	61
5/1/09	Payment: B. Benassi	2 000	00			2	50	10 887	11
12/1/09	EFT purchase	125	60			1	00	10 760	51
26/1/09	Payment: S. Yusuf	2 600	00			2	50	8 158	01
28/1/09	Salary			11 560	00			19 718	01

(Note: EFT is short for Electronic Funds Transfer)

- The fee for deposits is R2,00 plus R1,00 for every R100,00.
 - Stop order payments cost R2,50 regardless of the amount.
 - Card purchases cost R1,00 regardless of the amount.
 - Rent is Gerald's biggest expense.
- 1.1 Gerald is sure that there is a mistake in the fees column. Find and correct it. (4)
 - 1.2 If the error is corrected, what should Gerald's final balance be? (3)
 - 1.3 How much rent does Gerald pay each month? (1)
 - 1.4 How much money did Gerald spend this month on bank fees (assuming that the error has been corrected)? (2)
 - 1.5 Tax of R2 440 has already been deducted from Gerald's salary. What tax rate (percentage of his total salary) is he paying? (4)

1.6 Is Gerald better off or worse off at the end of January? Give a reason for your answer. (1)

Gerald is thinking about investing some of his money in a savings account. He has heard about an account that offers 9% per annum compounded weekly.

1.7 If Gerald invests R5 000, then how much will his investment be worth at the end of 3 years? (4)

Gerald sells cars at a successful dealership. He earns a basic salary of R8 000 per month plus a commission of R300 for each car that he sells.

1.8 Write down an expression for Gerald's earnings in a month in which he sells x cars. (3)

1.9 Draw a sketch of Gerald's earnings for up to 15 cars. (4)

1.10 How will your graph change if:

a) Gerald's commission is increased to R500 per car (2)

b) Gerald's basic salary is reduced to R7 000 per month? (2)

[30]

QUESTION 2

Two friends, Mark and Nasim, are planning a road trip. They have asked you to help them with some planning and have provided you with the following information.

- Petrol costs R10 per litre.
- Their car can travel 100 km on 7,5 litres of petrol.
- It costs R400 to fill the car’s tank with petrol.

2.1 What is the capacity of the petrol tank? (2)

2.2 How far can they travel (to the nearest km) on a tank of petrol? (2)

Now Mark and Nasim need to work out how far they are going to travel. Refer to the map below to help them answer the questions that follow.



They plan to travel from Bloemfontein (bottom left of map) to Bethlehem (top right of map), spending a day at Winburg and a day at Senekal.

2.3 Describe the route that they will follow. State which roads they must take and use compass directions to make the route easy to follow. (3)

2.4 Use the scale of the map to determine the actual distances in kilometres along the roads between:

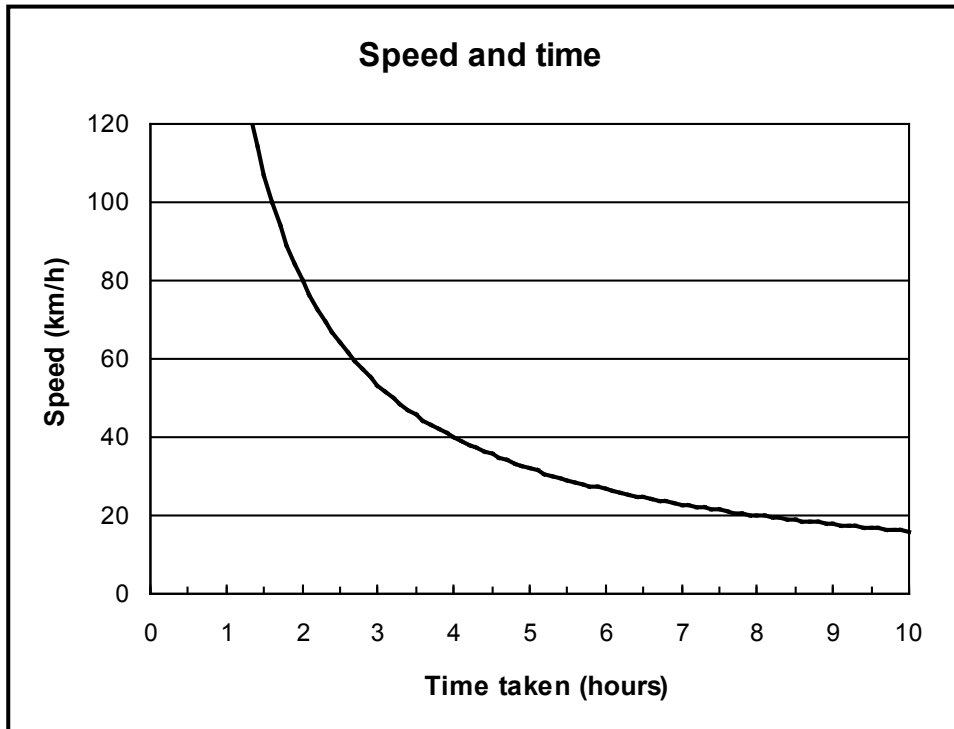
a) Bloemfontein and Winburg (2)

b) Winburg and Senekal (2)

c) Senekal and Bethlehem (2)

2.5 How long will it take to get from Bloemfontein to Bethlehem if they drive at an average speed of 100 km per hour? (2)

After helping Mark and Nasim with their plans, you start thinking about planning a trip of your own. Below is a graph that shows how long a journey will take depending on at how fast you drive. Refer to the graph to answer the questions that follow.



2.6 What kind of relationship is shown above? (1)

2.7 How fast must you drive to complete your trip in 2 hours? (2)

2.8 How long will the trip take if you drive at 40 km per hour? (2)

2.9 How long is the journey (i.e. what distance is being travelled)? (2)

2.10 How much longer (in minutes) would it take to travel the distance at 40 km per hour than it would at 60 km per hour? (3)

[25]

[TOTAL: 55 marks]

QUESTION 1

Charles owns a chocolate factory. You have been hired to help him check that his financial calculations make sense. The costs of running the factory are listed below:

Fixed costs

- Rent: R8 000 per month
- Utilities: R900 per month

Raw materials

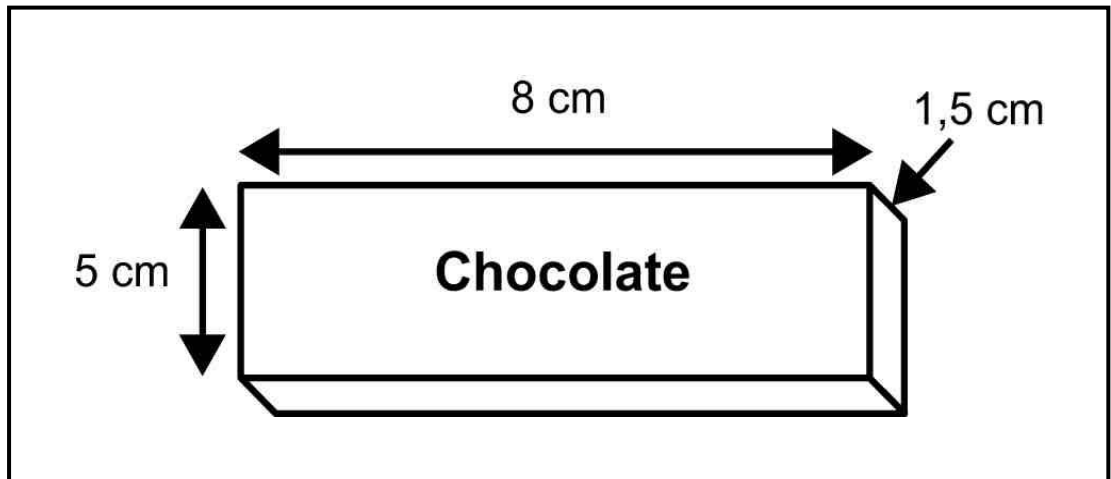
- Milk: R8 per litre
- Sugar: R12 per kilogram
- Cocoa beans: R30 per kilogram
- Eggs: R40 per dozen

Chocolate is made in batches

- A batch contains: 50 litres of milk, 20 eggs, 8 kg of sugar and 30 kg of cocoa beans
- Each batch makes 200 chocolate bars

- 1.1 What is the cost of the raw materials to make a batch of chocolate? (4)
- 1.2 If two batches of chocolate are made each day, 20 days per month, then what does it cost to run the factory for a month? (4)
- 1.3 Packaging costs R1,20 per chocolate bar. Determine the raw materials plus packaging costs of each chocolate bar. (3)

The dimensions of a chocolate bar are shown below:

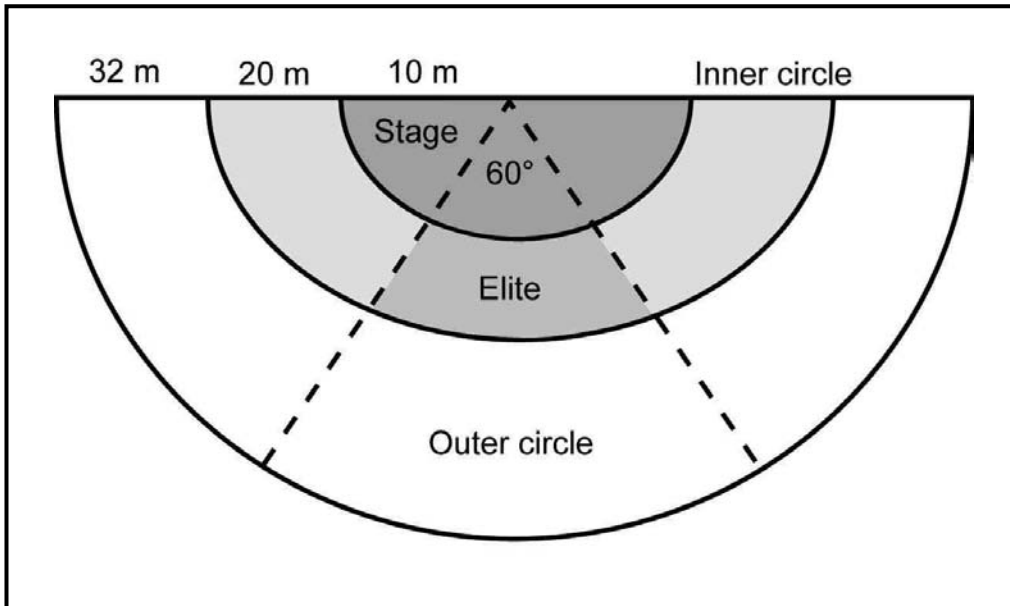


- 1.4 What is the volume of the chocolate bar? (2)
- 1.5 What is the surface area of the chocolate bar? (4)
- 1.6 The chocolate bar is covered with foil to keep it fresh. The amount of foil needed is 15% more than the surface area of the chocolate. How much foil will be needed to cover a bar? (3)
- 1.7 You snap off and eat a 3 cm by 4 cm block of the chocolate. What percentage of the chocolate did you eat? (5)

[25]

QUESTION 2

A popular band, the Muddy Socks, is giving a concert. The seating plan is shown below. The stage is the semi-circle (radius 10 m) at the top. The inner circle is 20 m thick and the outer circle is 32 m thick. There is an elite section in the inner circle (the seats with the best view). This is the most expensive section. The diagram below is not drawn to scale.



- Outer circle seats cost R100.
- Inner circle seats (not elite) cost R200.
- Elite seats cost R300.

- 2.1 What is the area of the stage? (3)
- 2.2 Find the area of the entire concert hall. (3)
- 2.3 Find the area of the inner circle (including elite). (3)
- 2.4 Find the area of the elite section. (4)
- 2.5 When the elite section is 80% full, there are 448 people in it. How many people will be in it when it is full? (3)
- 2.6 How much money will be raised if all of the tickets in the elite section are sold? (2)
- 2.7 If there are 4 000 people in the outer circle when it is two thirds full, how many seats are there in the outer circle in total? (2)
- 2.8 How much money will be raised from the sale of all the outer circle seats? (2)
- 2.9 How much extra money will be raised by increasing the price of the elite seats from R300 to R340? (3)

[25]

[TOTAL: 50 marks]

**MATHEMATICAL LITERACY
PRACTICE TEST FOUR****QUESTION 1**

The daytime temperature in a certain town is measured over a period of 8 consecutive days. The temperatures are listed below.

21 °C, 19 °C, 23 °C, 26 °C, 24 °C, 28 °C, 30 °C, 21 °C

- 1.1 What is the range in the temperature? (2)
- 1.2 What is the mean temperature? (3)
- 1.3 The average temperature is 16 °C in winter, 22 °C in spring, 18 °C in autumn and 35 °C in summer. In which season do you think the above temperatures were measured? Give a reason for your answer. (2)
- 1.4 If the average range in temperature between night and day is 13 °C, then what would the average night-time temperature be? (2)
- 1.5 Do you think that this sample of temperatures gives a good indication of the weather in the town? Give a reason for your answer. (1)
- 1.6 If the average spring temperature given in 1.3 increases by 4,5% due to global warming, what will it become? (2)
- 1.7 If the temperature is 14 °C at 7:00 a.m. and increases by 3 °C every 2 hours, write down an expression for the temperature x hours after 7:00 a.m. (3)

[15]**QUESTION 2**

Your friend Manu has asked you to help him with an important decision. He is currently earning R20 000 per month. He works from 9:00 a.m. to 17:00 p.m., Monday to Friday.

Manu has been offered a new job that pays by the hour. His rate will be R100 per hour and he would work between 8:00 a.m. and 19:00 p.m.

- 2.1 If Manu takes the new job, how much money will he be earning each month? (Assume 20 working days each month.) (3)
- 2.2 Should Manu change jobs? Justify your answer by referring to earnings, working hours and any other factors that you think are relevant. (4)

Manu has some other financial questions for you. He needs some advice regarding taxes and investments.

2.3 Manu is confused by the tax system and has asked for your help. Use the table below to determine how much tax he will pay this year, on his current salary of R20 000 per month.

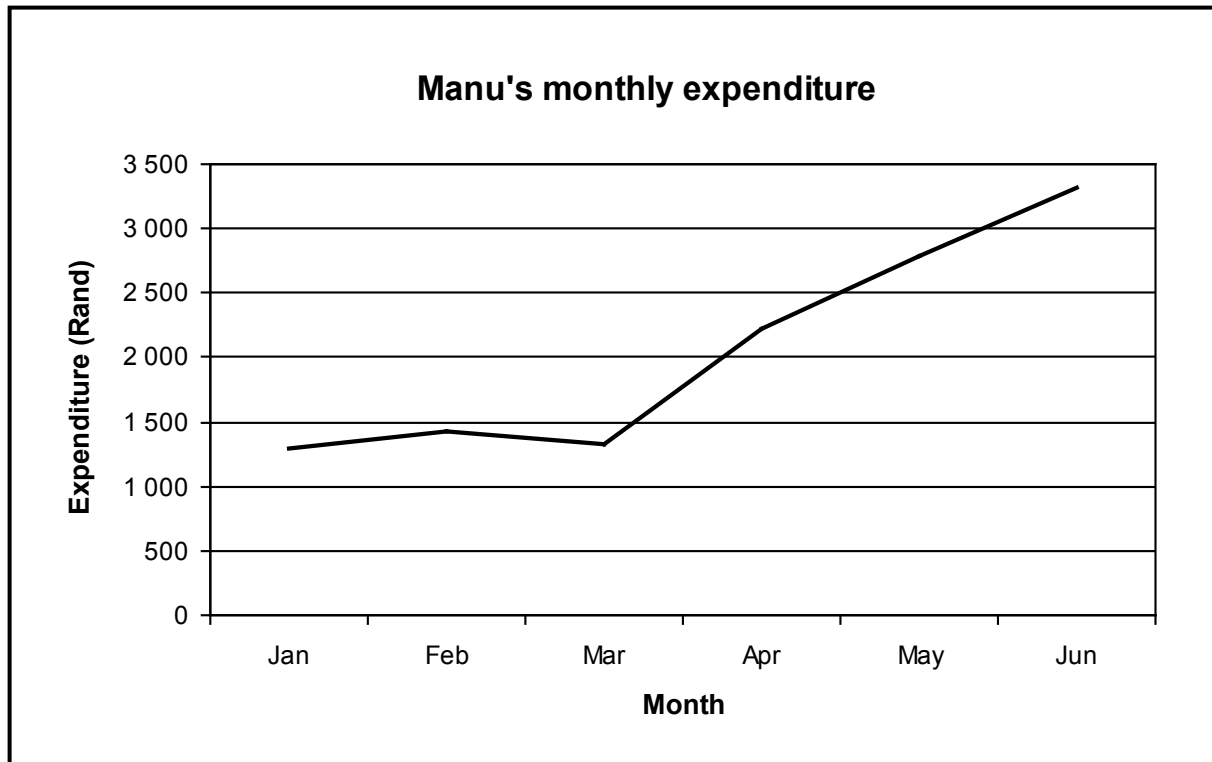
Taxable income for the year	Rate of tax
0 to R100 000	18%
R100 001 to R160 000	R18 000 + 25% of the amount over R100 000
R160 001 to R220 000	R33 000 + 30% of the amount over R160 000
R220 001 to R300 000	R51 000 + 35% of the amount over R220 000
R300 001 to R400 000	R79 000 + 38% of the amount over R300 000
R400 001 and above	R117 000 + 40% of the amount over R400 000

(3)

2.4 Manu has saved R30 000 and has invested it in a savings account that pays 8% interest per annum, compounded monthly. Determine how much interest he will earn in the first year.

(4)

Manu has been keeping track of his monthly expenses for the last few months to try to plan his life better. A graph of his monthly expenditure is shown below.



2.5 Describe the slope of the graph between January and March and explain what this tells us about Manu's monthly expenditure during this period.

(3)

- 2.6 Compare the slope of the graph between March and June to the slope between January and March. Explain what this tells us about Manu's expenditure over time. (3)
- 2.7 Manu has said that if he works out his average monthly expenditure, then he will know exactly how much to budget for July. Is he right or wrong? Justify your answer. (3)
- 2.8 Estimate the increase in expenditure between March and April. (2)

[25]

QUESTION 3

Sarah wants to buy a TV that costs R3 000. She does not have any cash, so she is thinking about paying it off.

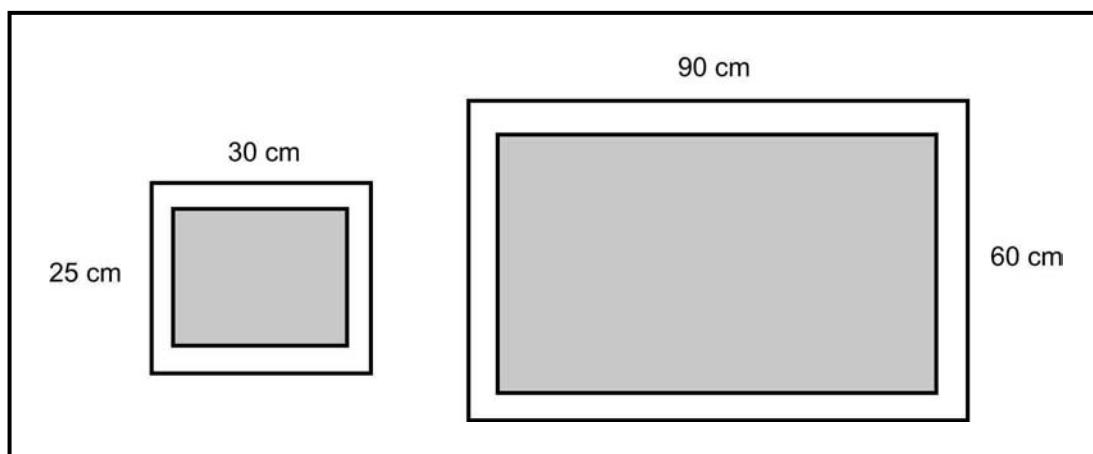
She has been offered a special plan. Monthly repayments are R25 per month and interest is 24% per annum, compounded monthly.

- 3.1 What percentage interest is added on each month? (1)
- 3.2 How much interest is added on in the first month? (1)
- 3.3 Should Sarah accept the plan or not? Use your answer from 3.2 to justify your answer. (3)

Sarah is expecting to earn a bonus at the end of the year, so she is also considering borrowing the R3 000 from her bank. The bank allows her to repay the loan with one payment at the end of 1 year. Interest is charged at 10% per annum, compounded quarterly.

- 3.4 Determine how much she will have to repay. (4)

The reason that Sarah wants to buy the new TV is that it is much bigger than her old one. The two TV sets are shown below.



- 3.5 If the screen of her old TV has a border of 2 cm around it, find the area of the screen. (3)
- 3.6 If the screen of the new TV has a border of 2 cm above and below and a border of 3 cm on either side, find the area of the screen. (3)

[15]

[TOTAL: 55 marks]

MATHEMATICAL LITERACY
PRACTICE TEST ONE MEMORANDUM

QUESTION 1

1.1 Cost = R500 × 10 ✓
= R5 000 ✓ (2)

1.2 200 km free per day, so free km = 200 × 10
= 2 000 km ✓

Paid
km = 3 558 – 2 000
= 1 558

Cost = 3,68 × 1 558 ✓
= R5 733,44 ✓ (3)

1.3 R800 ✓ (1)

1.4 R5 800 ✓ (1)

1.5 $\frac{3}{10}$ ✓✓ (2)

1.6 $\frac{8}{10}$ ✓✓ (or simplify to $\frac{4}{5}$) (2)

1.7 Total cost = 1 300 + (120 + 300 + 260) × 10 ✓✓
= R8 100 ✓ (3)

QUESTION 2

- 2.1 5 ✓ (1)
- 2.2 3 ✓ (1)
- 2.3 2 ✓ (5 – 3) (1)
- 2.4 33 ✓ (1)
- 2.5 Day 15. ✓ That was the day when his study time stopped increasing. We can recognise this as a horizontal line on the graph. ✓ (2)
- 2.6 Gradient = $\frac{21-3}{10-1}$ ✓✓ (or any other two points) (3)
= 2 hours per day ✓
- 2.7 At the end of day 6 they were equal, so Vicky overtook Craig on day 7. ✓ (1)
- 2.8 Day 13. ✓ Between the end of day 12 and day 13, there is no change in the total number of hours studied. This is shown as a horizontal line on the graph. ✓ (2)
- 2.9 Day 17 was the last day of study, so day 18 was the day of the exam. ✓ (1)
- 2.10 $8 + 2x$ ✓✓ (2)
- 2.11 Number of learners = $9 + 5$ ✓ (2)
= 14 ✓

2.12 There are 9 papers in the 60 % to 79 % range.

So probability = $\frac{1}{9}$ ✓✓ (2)

2.13 0 ✓ (Craig did not score within this range) (1)

[20]

[TOTAL: 40 marks]

MATHEMATICAL LITERACY
PRACTICE TEST TWO MEMORANDUM

QUESTION 1

- 1.1 The payments and EFT (Electronic Funds Transfer) purchase fees are right, so the error must be the deposit fee. ✓

$$\begin{aligned} \text{Fee amount should} &= 2 + \left(\frac{1000}{100} \times 1 \right) \checkmark\checkmark \\ &= R12 \checkmark \end{aligned}$$

This means that the amount of R15 is incorrect and should be replaced with R12. (4)

- 1.2 Gerald was charged R3 too much, which means that his balance is R3 too low.

If the error is corrected, his balance will have to increase by R3.

$$\begin{aligned} \text{Balance} &= 19\,718,01 + 3 \checkmark\checkmark \\ &= R19\,721,01 \checkmark \end{aligned} \quad (3)$$

- 1.3 R2 600 ✓ (1)

$$\begin{aligned} \text{Total spent on fees} &= 12 + 2,50 + 2,50 + 1 + 2,50 \checkmark \\ &= R20,50 \checkmark \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Salary before tax} &= 11\,560 + 2\,440 \\ &= R14\,000 \checkmark \end{aligned}$$

$$\begin{aligned} \text{Tax rate} &= \frac{2\,440}{14\,000} \times 100 \checkmark\checkmark \\ &= 17,43\% \checkmark \end{aligned} \quad (4)$$

- 1.6 Better off, because his bank balance is higher at the end of the month than it was at the beginning. ✓ (1)

QUESTION 2

2.1 Tank capacity = $\frac{400}{10}$ ✓
= 40 litres ✓ (2)

2.2 Distance = $\frac{40}{7,5} \times 100$ ✓
= 533 km ✓ (2)

2.3 Travel north-east along the N1 to Winburg. ✓ At Winburg, travel east along the N5 to Senekal. ✓ To get to Bethlehem, continue travelling east along the N5 from Senekal. ✓ (3)

2.4 **Note:** Certain printer settings may cause the scale diagrams to print differently. The following solution is intended as a guide regarding method and mark allocation. The final answers should remain approximately the same but workings may vary.

Scale: 7 mm = 10 km

a) 80 mm = $80 \times \frac{10}{7}$ ✓
= 114,29 km ✓ (2)

b) 50 mm = $50 \times \frac{10}{7}$ ✓
= 71,43 km ✓ (2)

c) 50 mm = $50 \times \frac{10}{7}$ ✓
= 71,43 km ✓ (2)

2.5 Distance = $114,29 + 71,43 + 71,43$
 = $257,15$ km ✓

Time = $\frac{257,15}{100}$
 = $2,57$ hours ✓ (2)

2.6 An inverse relationship (as one variable increases, the other decreases). ✓ (1)

2.7 80 km/h ✓✓ (2)

2.8 4 hours ✓✓ (2)

2.9 Distance = 80×2 ✓ (can use any point on the graph)
 = 160 km ✓ (2)

2.10 At 60 km/h, journey would take $\frac{160}{60} = 2,67$ hours = 2 hours 40 min. ✓

At 40 km/h, would take 4 hours.

∴ difference = 4 hours – 2 hours 40 min
 = 1 hour 20 min ✓
 = 80 minutes ✓ (3)

[25]

[TOTAL: 55 marks]

MATHEMATICAL LITERACY
PRACTICE TEST THREE MEMORANDUM

QUESTION 1

$$1.1 \quad \begin{aligned} \text{Cost of eggs} &= \frac{40}{12} \times 20 \checkmark \\ &= R66,67 \end{aligned}$$

$$\begin{aligned} \text{Total cost} &= (50 \times 8) + (8 \times 12) + (30 \times 30) + 66,67 \checkmark\checkmark \\ &= R1\,462,67 \checkmark \end{aligned} \quad (4)$$

$$1.2 \quad \begin{aligned} \text{Batches per month} &= 2 \times 20 \\ &= 40 \end{aligned}$$

$$\begin{aligned} \therefore \text{total cost of chocolate} &= 40 \times 1\,462,67 \checkmark \\ &= R58\,506,80 \checkmark \end{aligned}$$

$$\begin{aligned} \text{Total cost of factory} &= R58\,506,80 + R8\,000 + R900 \text{ (add on fixed costs)} \checkmark \\ &= R67\,406,80 \checkmark \end{aligned} \quad (4)$$

$$1.3 \quad \begin{aligned} \text{Cost per chocolate bar} &= \frac{1\,462,67}{200} + 1,20 \checkmark\checkmark \\ &= R8,51 \checkmark \end{aligned} \quad (3)$$

$$1.4 \quad \begin{aligned} \text{Volume} &= 5 \times 8 \times 1,5 \checkmark \\ &= 60 \text{ cm}^3 \checkmark \end{aligned} \quad (2)$$

$$1.5 \quad \begin{aligned} \text{Surface area} &= \text{top and bottom} + \text{front and back} + \text{sides} \\ &= 2 \times (5 \times 8) + 2 \times (8 \times 1,5) + 2 \times (1,5 \times 5) \checkmark\checkmark\checkmark \\ &= 119 \text{ cm}^2 \checkmark \end{aligned} \quad (4)$$

QUESTION 2

$$\begin{aligned} 2.1 \quad \text{Area} &= \frac{1}{2} \times \pi(10)^2 \checkmark\checkmark \\ &= 157,08 \text{ m}^2 \checkmark \end{aligned} \quad (3)$$

$$\begin{aligned} 2.2 \quad \text{Area} &= \frac{1}{2} \times \pi(10 + 20 + 32)^2 \checkmark\checkmark \\ &= 6\,038,14 \text{ m}^2 \checkmark \end{aligned} \quad (3)$$

$$\begin{aligned} 2.3 \quad \text{Inner circle} &= \frac{1}{2} \times \pi(10 + 20)^2 - 157,08 \checkmark\checkmark \\ &= 1\,256,64 \text{ m}^2 \checkmark \end{aligned} \quad (3)$$

2.4 A semi-circle contains 180° . The elite section occupies 60° .

$$\text{Fraction} = \frac{60}{180} = \frac{1}{3} \checkmark$$

$$\begin{aligned} \text{This means that elite area} &= \frac{1}{3} \times \text{inner circle area} \\ &= \frac{1}{3} \times 1\,256,64 \checkmark\checkmark \\ &= 418,88 \text{ m}^2 \checkmark \end{aligned} \quad (4)$$

$$2.5 \quad 80\% \times \text{elite} = 448 \checkmark$$

$$\begin{aligned} \therefore \text{elite} &= \frac{448}{80\%} \checkmark \\ &= 560 \text{ people} \checkmark \end{aligned} \quad (3)$$

2.6 Money raised = $R300 \times 560$ seats ✓
= R168 000 ✓ (2)

2.7 Two thirds = 4 000

$$\therefore \text{one third} = \frac{4\,000}{2}$$

$$= 2\,000$$

$$\therefore \text{total (three thirds)} = 2\,000 \times 3 \checkmark$$
$$= 6\,000 \text{ seats } \checkmark \quad (2)$$

2.8 Money raised = $R100 \times 6\,000$ seats ✓
= R600 000 ✓ (2)

2.9 Gain per seat = $340 - 300$
= R40 ✓

$$\text{So total extra raised} = R40 \times 560 \text{ seats } \checkmark$$
$$= R22\,400 \checkmark \quad (3)$$

[25]

[TOTAL: 50 marks]

MATHEMATICAL LITERACY
PRACTICE TEST FOUR MEMORANDUM

QUESTION 1

1.1 Range = $30 - 19$ ✓
= 11 °C ✓ (2)

1.2 Mean = $\frac{21+19+23+26+24+28+30+21}{8}$ ✓✓
= $\frac{192}{8}$
= 24 °C ✓ (3)

1.3 Probably spring ✓ because the average temperature is closest to the average for spring. ✓ However, there are too few days to make a strong conclusion. (2)

1.4 Average night-time temperature = $24 - 13$ ✓
= 11 °C ✓ (2)

1.5 Not really. The sample contains too few observations. ✓ (1)

1.6 Temperature = $22 \times (100\% + 4,5\%)$
= $22 \times 1,045$ ✓
= $22,99$ °C ✓ (2)

1.7 3 °C in 2 hours = $\frac{3}{2} = 1,5$ °C per hour ✓

∴ temperature = $14 + 1,5x$ ✓✓ (3)

[15]

QUESTION 2

$$\begin{aligned} 2.1 \quad \text{Number of hours per month} &= 11 \times 20 \\ &= 220 \end{aligned}$$

$$\begin{aligned} \therefore \text{monthly earnings} &= 220 \times R100 \checkmark\checkmark \\ &= R22\,000 \text{ per month } \checkmark \end{aligned} \quad (3)$$

2.2 Although the new job offers Manu more money in total, his working hours would increase. A higher salary does not always mean a better job.

$$\begin{aligned} \text{At his current job, hours worked} &= 8 \text{ hours per day} \times 20 \text{ working days per month} \\ &= 160 \text{ hours per month } \checkmark \end{aligned}$$

$$\begin{aligned} \therefore \text{current hourly rate} &= \frac{20\,000}{160} \checkmark \\ &= R125 \checkmark \end{aligned}$$

So Manu's current job pays more per hour than the new job. \checkmark

Note: Learners are required to understand that there is more to a job choice than salary. Financial decisions contain many qualitative and quantitative factors. (4)

$$\begin{aligned} 2.3 \quad \text{Annual earnings} &= 20\,000 \times 12 \\ &= 240\,000 \checkmark \end{aligned}$$

$$\begin{aligned} \text{Taxation} &= 51\,000 + 35\% \times (240\,000 - 220\,000) \\ &= 51\,000 + (35\% \times 20\,000) \checkmark \\ &= R58\,000 \checkmark \end{aligned} \quad (3)$$

2.4 Value at end of year = $30\,000\left(1 + \frac{8\%}{12}\right)^{12}$ ✓✓
= 32 489,99

∴ interest = 32 489,99 – 30 000 ✓

= R2 489,99 ✓ (4)

2.5 Slope is almost flat, ✓ which tells us that expenditure remained fairly constant. ✓✓
(Espenditure increased slightly, then decreased slightly.) (3)

2.6 The slop is much steeper ✓ between March and June than between January and
March. This tells us that Manu's expenditure is increasing ✓ much more quickly ✓ over
the period. (3)

2.7 He is wrong. ✓ Expenditure is increasing, so this means that each month's
expenditure will be higher than the average. ✓ The average does not give us a reliable
prediction of the future values. ✓ (3)

2.8 Approximately R900 ✓✓ (2)

[25]

QUESTION 3

3.1 Percentage interest = $\frac{24\%}{12}$
= 2% per month ✓ (1)

3.2 Interest in first month = $2\% \times 3\,000$
= R60 ✓ (1)

3.3 No. ✓ The interest added on each month is more than the monthly repayment. ✓ This means that the loan will never be paid off ✓ and the debt will increase over time. (3)

3.4 Amount = $3\,000\left(1 + \frac{10\%}{4}\right)^4$ ✓✓✓
= R3 311,44 ✓ (4)

3.5 Area = $(30 - 2 - 2) \times (25 - 2 - 2)$ ✓
= 26×21 ✓
= 546 cm^2 ✓ (3)

3.6 Area = $(60 - 2 - 2) \times (90 - 3 - 3)$ ✓
= 56×84 ✓
= $4\,704 \text{ cm}^2$ ✓ (3)

[15]

[TOTAL: 55 marks]



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