

HILLCREST HIGH SCHOOL



Mathematical Literacy  
Grade 10  
June 2021

Examiner: Mrs Leuschke

MARKS: 75

Moderator: Mrs. D Lourens

TIME: 1½ hour

NAME : \_\_\_\_\_

TEACHER : \_\_\_\_\_

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 6 questions. Answer ALL the questions.
2. Write your name and **your Mathematical Literacy teacher**'s name on your question paper.
3. Clearly show ALL calculations, diagrams, graphs, etc which you have used to determine your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. An approved scientific calculator (non-programmable) may be used, unless otherwise stated.
6. If necessary, answers should be rounded off to TWO decimal places, unless otherwise stated.
7. Number the answers EXACTLY as the questions are numbered.
8. Diagrams are not necessarily drawn to scale.
9. It is in your own interest to write legibly and to present your work neatly.

QUESTION 1

In order to earn extra pocket money, Michael works for the local Spar every Saturday for 7 hours. He starts work at 07:30 and his hourly rate is R25,40.

Michael saves some of his earnings each Saturday for an outing to the movies and dinner with three friends.

His budget for this outing is listed below :-

- 4 return bus tickets to the movies cost R80,00
- 4 movies tickets cost R340,00
- 2 Juices at the movie cost R18,00
- 4 Dinner at Spar cost R498,00 plus R50,00 tip

1.1 Write Michael's starting time in analogue. (2)

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1.2 At what time does he finish work? (2)

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1.3 Calculate how much he earns each Saturday? (2)

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1.4 What is the cost per person of a return bus ticket? (2)

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1.5 The friends are the following ages :

John is 16 years old ; Stef is 18 years old ; Michael is 17 years old and Brett is 17 years old.

Give the mode of their ages. (2)

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1.6 Write the ratio of the cost of the bus tickets : the cost of the movie tickets in the simplest form. (2)

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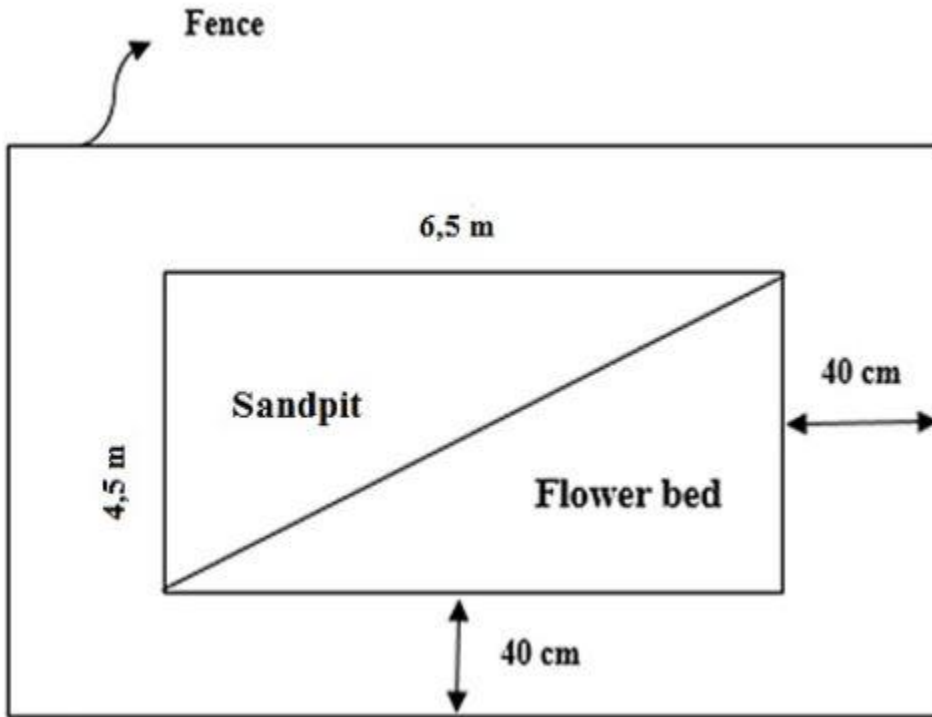
1.7 Round the amount spent on juices to the nearest R10. (2)

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[14}

QUESTION 2

Allison is feeling creative. She is going to divide a patch of ground into a sandpit for her children to play in, and a flower bed which will look pretty. The patch of ground is 6,5 m wide and 4,5 m long from front to back.



2.1 She needs to fence the whole area off to prevent the dogs from digging it up. She will leave a 40 cm border on all sides. Calculate in metres length of fencing she needs to enclose the entire perimeter. You may use the following formula:

$$\text{Perimeter} = 2 \times \text{length} + 2 \times \text{breadth} \quad (4)$$

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2.2 Allison decides to paint a certain part of the fence. A 2 litre tin covers 12m<sup>2</sup>.

2.2.1 Allison wishes to paint 18m<sup>2</sup> of the fence. Calculate the ratio of the area of the fence : the area covered by the 2 litre tin in its simplest form. (2)

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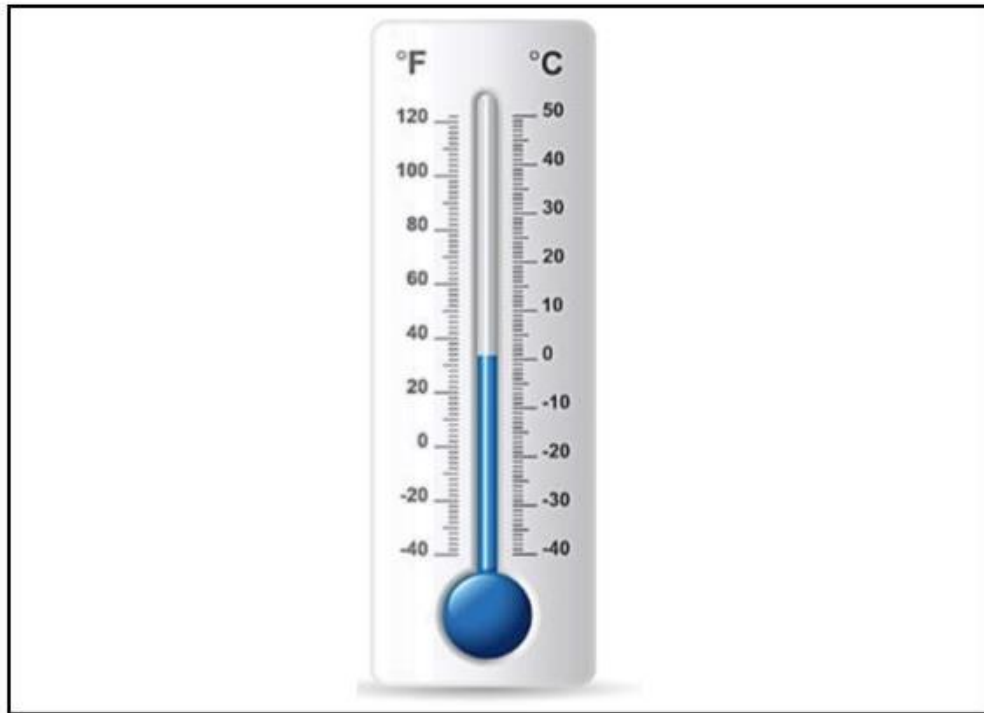
2.2.2 Upon careful inspection Allison decided that she needs to paint 20m<sup>2</sup>. Calculate the amount of paint she needs in litres and millilitres. (3)

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2.3 Study the thermometer below and answer the questions.



[Source: [holdthesulfites.com](http://holdthesulfites.com)]

2.3.1 If a patient's temperature reading is 32 °C, write down what you estimate that the temperature will be in degrees Fahrenheit. (2)

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2.3.2 Justify your accuracy by using the following formula to calculate the exact temperature. Round off the final answer to the nearest whole number. (3)

$$^{\circ}\text{F} = (^{\circ}\text{C} \times \frac{9}{5}) + 32$$

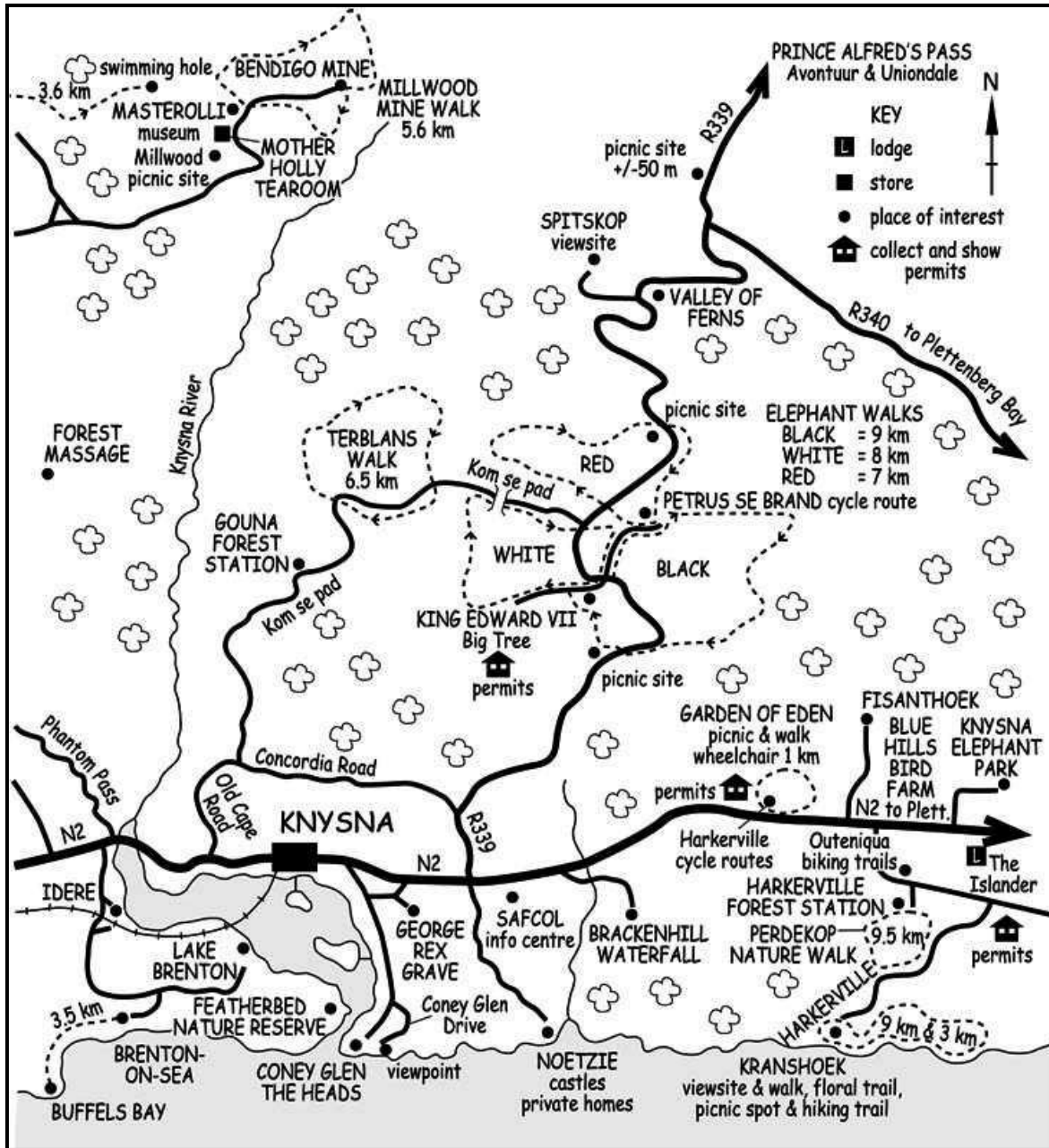
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QUESTION 3

The questions are based on the following hiking map:



3.1 How many locations on the map are there where permits can be collected? (2)

3.2 Which is the longest elephant walk available and what is the distance? (2)

3.3 Sarah, a friend of yours, is at Noetzie and she has asked you for directions to the nearest picnic spot. Provide Sarah with clear, simple directions explaining how to get to the nearest picnic spot. Use road names, compass directions and landmarks to make your directions more helpful. (4)

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3.4 If you were to follow the Knysna River to Millwood Mine Walk from Forest Massage, in which direction would you be travelling? (2)

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**[10]**

#### QUESTION 4

Municipalities charge rates for each property, for example, a house, a flat or a piece of land. Rates are based on the property's value. These rates are a type of tax that is used to pay for the running of a city, and for things like roads and providing water-supply pipes. Municipalities also charge for services they provide to households, like collecting rubbish and providing water. Here is some information about how a municipal-rates account is calculated for households.

There are several charges on a municipal account that vary according to the type of property you own and how much water you consume. The details are as follows.  
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#### **Single-residential properties**

**Property rates** are based on the total value of the property (building and land). The rate is 0,989c for every rand of the property value (per year).

**Refuse collection charge** is R38,60 for a wheelie bin (monthly charge).

#### **Single-residential properties**

**Water consumption** is charge on a stepped tariff. The more water you use, the more expensive it becomes. The table below shows the monthly charges:

<b>Water consumption (kl)</b>	<b>Charge per kilolitre (R)</b>
0–6	free
7–20	2,73
21–40	4,30
41–60	5,46

- The first 6 kl of water are free.
- The next 14 kl cost R2,73 for each kilolitre.
- The next 20 kl cost R4,30 for each kilolitre.
- The next 20 kl cost R5,46 for each kilolitre.

4.1 What will the annual Property rates be for one year for a property that is worth R750 000? (2)

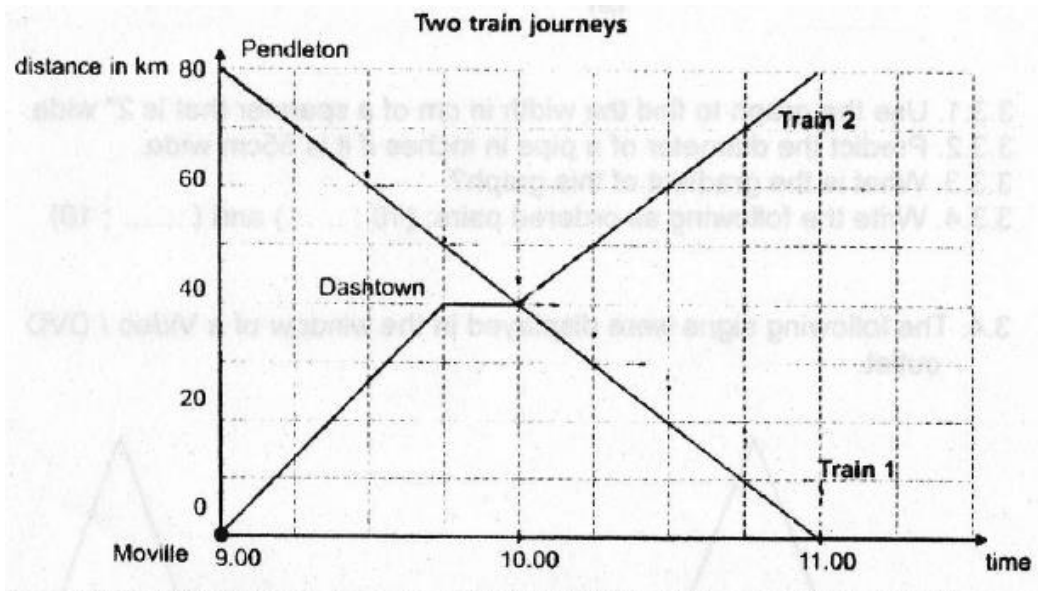
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QUESTION 5

Use the information provided in the graph below to answer the following questions.



5.1 How far is it from Pendleton to Merville (2)

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5.2 At what time did Train 1 arrive at Merville? (2)

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5.3 Why do you think that Train 2 stopped at Dashtown? (2)

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5.4 What was the speed of Train 2 from Merville to Dashtown? (Give your answer correct to 1 decimal place.) (3)

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[9]

### QUESTION 6

The following table is a record of rainfall in mm for the town of Bethlehem during the month of January 2012. The data was collected over 7 days.

Day	1	2	3	4	5	6	7
Rainfall (mm)	15	25	10	40	20	20	45

6.1 Determine the mean rainfall for the town of Bethlehem for the 7 days of observation. (3)

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6.2 Determine the median rainfall for the town of Bethlehem for this week. (2)

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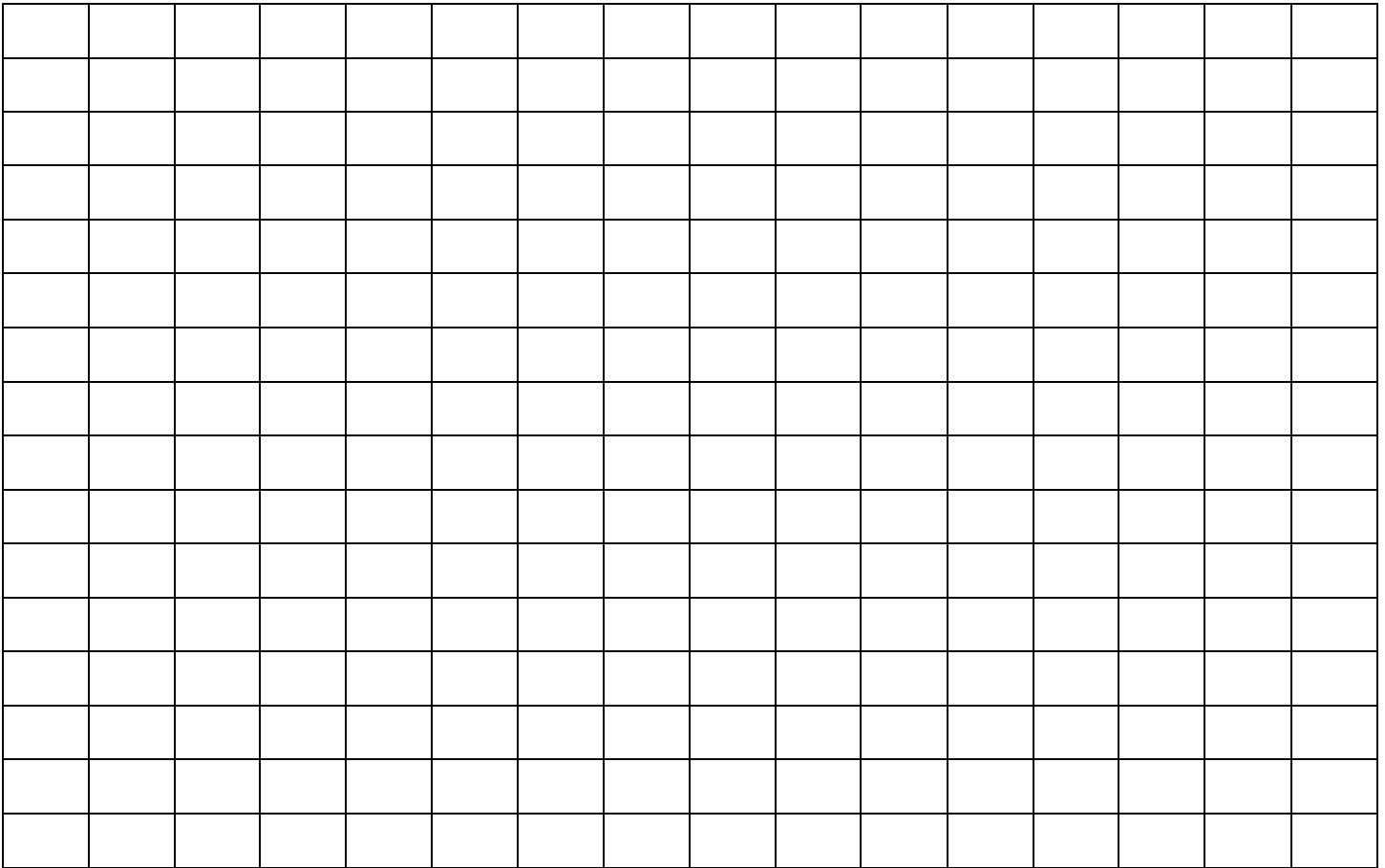
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6.3 Calculate the range of the data. (2)

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6.4 Draw a neat line graph for the above data. Label both axes and give the graph a heading. (5)



6.5 Verify that day 4 had the most rainfall. (2)

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6.6 What is the probability of having less than 20mm rainfall for the 7 days. Show your answer as a percentage. Give your answer to the nearest percentage. (2)

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**[16]**