



**HILLCREST HIGH SCHOOL**  
**Mathematical Literacy**  
**Examination**  
**Gr 11 Paper 2**  
**November 2021**

**Examiner: MrsD. Headley**

**Moderator: MrC Lees**

**MARKS: 100**

**TIME: 2 hours**

<u>NAME :</u>						
<u>TEACHER :</u>						
<u>Q1</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>TOTAL</u>	<u>GRAND TOTAL</u>	<u>%</u>

**INSTRUCTIONS AND INFORMATION:**

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions and 18 pages, including Annexures A to F. Check that you have everything. Answer ALL the questions in the spaces provided.
2. Clearly show ALL calculations, diagrams, graphs, etc which you have used to determine your answers.
3. Answers only will NOT necessarily be awarded full marks.
4. An approved scientific calculator (non-programmable) may be used, unless otherwise stated.
5. If necessary, answers should be rounded off to TWO decimal places, unless otherwise stated, or appropriately within the given context.
6. Number the answers EXACTLY as the questions are numbered.
7. Diagrams are not necessarily drawn to scale.
8. It is in your own interest to write legibly and to present your work neatly

Spring has sprung and Toffy decided that he would like to get his garden looking great! He wants his grass looking healthy and green and is planning to plant some flowering bushes as well. Toffy has determined that he will need lawn dressing and fertiliser in order to attend to the lawn. A short while ago Builders Express was running a special on lawn dressing, so it was the perfect time for Toffy to buy some.

**See Annexure A:** One bag of Cultura Lawn Dressing ( $30\text{dm}^3$ ;  $1\text{dm}^3 = 10 \times 10 \times 10\text{cm}$ ). A  $30\text{dm}^3$  bag of lawn dressing covers  $4\text{m}^2$  of lawn. (Toffy could also purchase this in liquid form in 1 litre containers but decides not to.)

**See Annexure B:** A 2kg bag of Wonder Vitaliser Lawn and Leaf 7-1-3 Granules costs R58 and will cover  $100\text{m}^2$ .

Toffy needs to determine how many bags of each (lawn dressing and fertiliser) he will require. He uses Google Earth to measure the area of his lawn. Toffy's land area measures  $155\text{m}^2$ , which includes his house that occupies  $70\text{m}^2$ . (**See Annexure C.**)

Toffy realises that he will not be able to fit all the bags of lawn dressing and fertiliser in his car, so he is considering using the optional delivery service at an added cost of R65.



Toffy lives in Normandy Gardens Estate, Pierre van Ryneveld Park.

**QUESTION ONE:**

1.1.1 Refer to **Annexure A**. State the code number for Culterra Lawn Dressing to make ordering online easier. (2)

1.1.2 What is the cost of 1 bag of Culterra Lawn Dressing? (2)

1.1.3 Give the volume of one bag of Culterra Lawn Dressing. (2)

1.2.1 Refer to **Annexure B**. Give the name of the fertiliser Toffy is going to buy. (2)

1.2.2 State the coverage of the bag of fertiliser. (2)

1.3 Refer to **Annexure C**. What view of Toffy's house is represented here? (2)

1.4.1 Refer to **Annexure D**. What type of map is featured here? (2)

1.4.2 Name two types of roads that appear on the map. (2)

1.5.1 Refer to **Annexure E**. State the VAT number for this branch of Builders Warehouse. (2)

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1.5.2 State the full address of the Builders Warehouse that Toffy purchased the Lawn Dressing and Fertiliser from. (2)


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**QUESTION TWO:**

2.1 Refer to **Annexure C**. Use the area of Toffy's land as indicated by Google Earth and the fact that his house occupies 70m<sup>2</sup> to calculate the area of his lawn. (2)


2.2 According to the invoice on **Annexure E**, Toffy purchased 22 bags of Lawn Dressing. By making use of the information regarding spread (**Annexure A**) and the answer to 2.1 above, verify whether Toffy has purchased sufficient Lawn Dressing for his garden. (5)


2.3 Toffy's friend, Morné, owns a bakkie and said he would be happy to collect the bags of Lawn Dressing and Fertilizer from Builder's Express and deliver them to Toffy's house. Morné agrees to let Toffy pay for his fuel expenses. The round trip from his home in Wierdaglen Estate, to Builder's Express, then to Toffy's house and back home again is shown on the map provided on **Annexure D**. His bakkie has a fuel consumption of 8,2 litres per 100km. The current cost of fuel is R17,21 per litre.



2.3.1 The distance on the map is measured as 23cm. Convert this to a ratio scale in the form of 1:... Round your answer off to the nearest thousand. (4)


2.3.2 Calculate how many litres of fuel Toffy's friend will use to make the round trip. (3)


2.3.3 Calculate the cost of the fuel. (2)


2.3.4 In your opinion, which would be the best transport option for Toffy (Builders Warehouse Delivery Service or Morné)? Justify your answer by providing a reason. (2)


2.3.5 Toffy hasn't seen Morné for quite a while, due to Covid restrictions, so he decides to take him out for a meal as a thank you gesture for his help. Name the nearest restaurant to Toffy, as shown on the map on **Annexure D**. (2)

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2.3.6 Toffy's onboard navigation system isn't working due to a power failure and no network coverage from the local cell towers. Give him detailed directions to the restaurant from his home at Normandy Gardens Estate. (4)

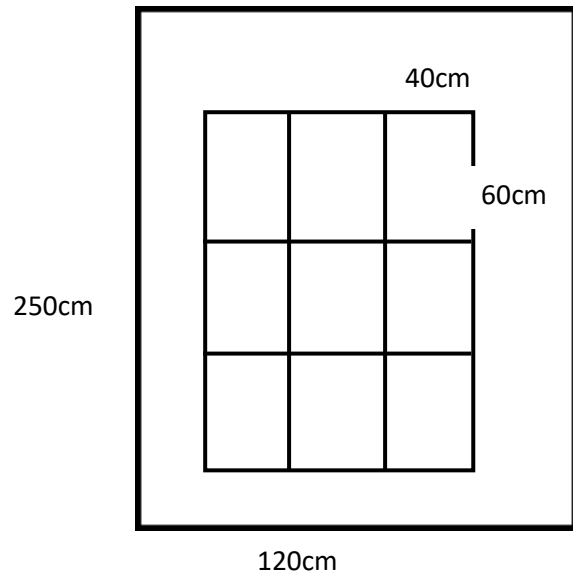

2.3.7 Give the general direction from the restaurant to Morné's home. (2)

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2.3.8 Name the dam that is shown on the map near to the restaurant. (2)

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2.4 If the loading bin of the bakkie measures 250cm by 120cm, and the bags of Lawn Dressing measure 60cm by 40cm, packed in a vertical arrangement...



**Example** of Vertical Arrangement of Bags of Lawn Dressing – **not drawn to scale**.

2.4.1 Calculate the number of bags of Lawn dressing that can fit along the length of the loading bin of the bakkie when packed in a vertical arrangement. (2)


2.4.2 Calculate the number of bags of Lawn Dressing that can be packed along the width of the loading bin of the bakkie when packed in a vertical arrangement. (2)


2.4.3 Hence, or otherwise, by calculation, verify that the loading bin of the bakkie can hold 12 bags of Lawn Dressing in one layer, when packed in a vertical arrangement. (2)


2.5.1 Toffy decides to spread the Lawn Dressing and Fertiliser himself. He estimates that he can cover  $4\text{m}^2$  every 3 minutes. By using your answer from Q.2.1, calculate how long will it take him to cover his entire garden. Give your answer in hours. (4)


2.5.2 If Toffy takes a 15-minute break every 30 minutes, how many breaks will he have during this task? (2)


2.5.3 How long will the task take in total? Give your answer in hours and minutes. (3)


2.5.4 If Toffy starts this job at 1:50pm, at what time will he be finished? Give your answer in the 24-hour format, rounded to the nearest minute. (3)




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**QUESTION THREE:**

Toffy’s wife has asked for some flowering bushes to be planted in pots to be along the edge of the garden. Toffy and his wife decide to visit the nearest branch of PlantLand to choose the bushes and the pots. They had to chose between a rectangular pot or cylindrical pot. They also purchased a variety of colours of miniature azalea bushes.



The following information is provided for the above two types of plant pot:

<b>Square Based Rectangular Pot</b>	<b>Cylindrical Pot</b>
Length = 135cm	Diameter = 150cm
Breadth = 135cm	Height = 2m
Height = 2,1m	$Volume = \pi r^2 h$
$Volume = l \times b \times h$	$TSA = \pi r^2 + 2\pi r h$
$TSA = 2(l \times b + b \times h + l \times h)$	$\pi = 3,142$

3.1.1 Give the radius of the cylindrical pot in metres. (3)


3.1.2 Calculate the capacity (in m<sup>3</sup>) of the cylindrical pot. (2)


3.2 Give Toffy's wife advice regarding which pot would be most cost effective. Justify your answer by comparing the capacity of the square based pot and the cylindrical pot, in order to determine how much potting soil each would require. (4)


3.3.1 The salesperson recommended that the pots be sealed with a special concrete sealant. Calculate the outer surface area of one cylindrical pot. Remember that the base will not be painted with sealant. (3)


3.3.2 Toffy's wife purchases 15 cylindrical pots. Calculate how much sealant she will need to purchase if the spread rate is given as "500ml covers 8m<sup>2</sup>". Give your answer in litres. (5)


3.3.3 Toffy's wife can only purchase the sealant in 2-litre tins. How many tins must she buy? (2)


3.3.4 The cost per tin excluding VAT is R67,59. She claims that the total cost will be R310 including VAT, rounded to the nearest R10. Show all necessary calculations to verify whether she is correct. (5)


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**QUESTION FOUR**

4.1.1 Toffy purchased a weed eater and leaf blower to keep his garden neat and tidy. When he unpacked the weed eater, he realised that he needed to install the first reel of cutting line. Refer to **Annexure F** for the diagrams and instructions.

In which direction must he wind the cutting line onto the reel? (2)

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4.1.2 Toffy had to assemble part of the leaf blower. How many screws were included for this purpose? (2)

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4.2.1 Toffy's wife chose 15 miniature azalea bushes to plant in the pots; 4 were pale pink, 3 were white, 5 were magenta, the rest were red. Calculate the probability of randomly choosing a red miniature azalea bush. (3)


4.2.2 Calculate the probability of randomly choosing a miniature pale pink azalea bush. Give your answer as a percentage, correct to one decimal place. (3)


**[10]**

## Annexure A:

YOU ARE HERE › HOME › GARDEN & PETS › PLANT & LAWN CARE › FERTILISERS › CULTERRA LAWN DRESSING (30DM3)

# Culterra Lawn Dressing (30dm3)

34597

ERASMUS PARK [CHANGE STORE](#)

**R28** each

Write a review (0)

**PROMOTION**

VALID UNTIL: 2021/09/06

REGIONAL

DELIVER  COLLECT

**84** In stock

Did you know that you can collect your order at your nearest store?

– 1 + [Add to trolley](#)

[ADD TO WISHLIST](#) [ADD TO SHOPPING LIST](#)

## Annexure B:

YOU ARE HERE › HOME › GARDEN & PETS › PLANT & LAWN CARE › FERTILISERS › WONDER VITALISER LAWN AND LEAF 7-1-3 GRANULES (2KG)

# Wonder Vitaliser Lawn and Leaf 7-1-3 Granules (2kg)

36601

ERASMUS PARK [CHANGE STORE](#)

**R58** each

Write a review (0)

**PROMOTION**

DELIVER  COLLECT

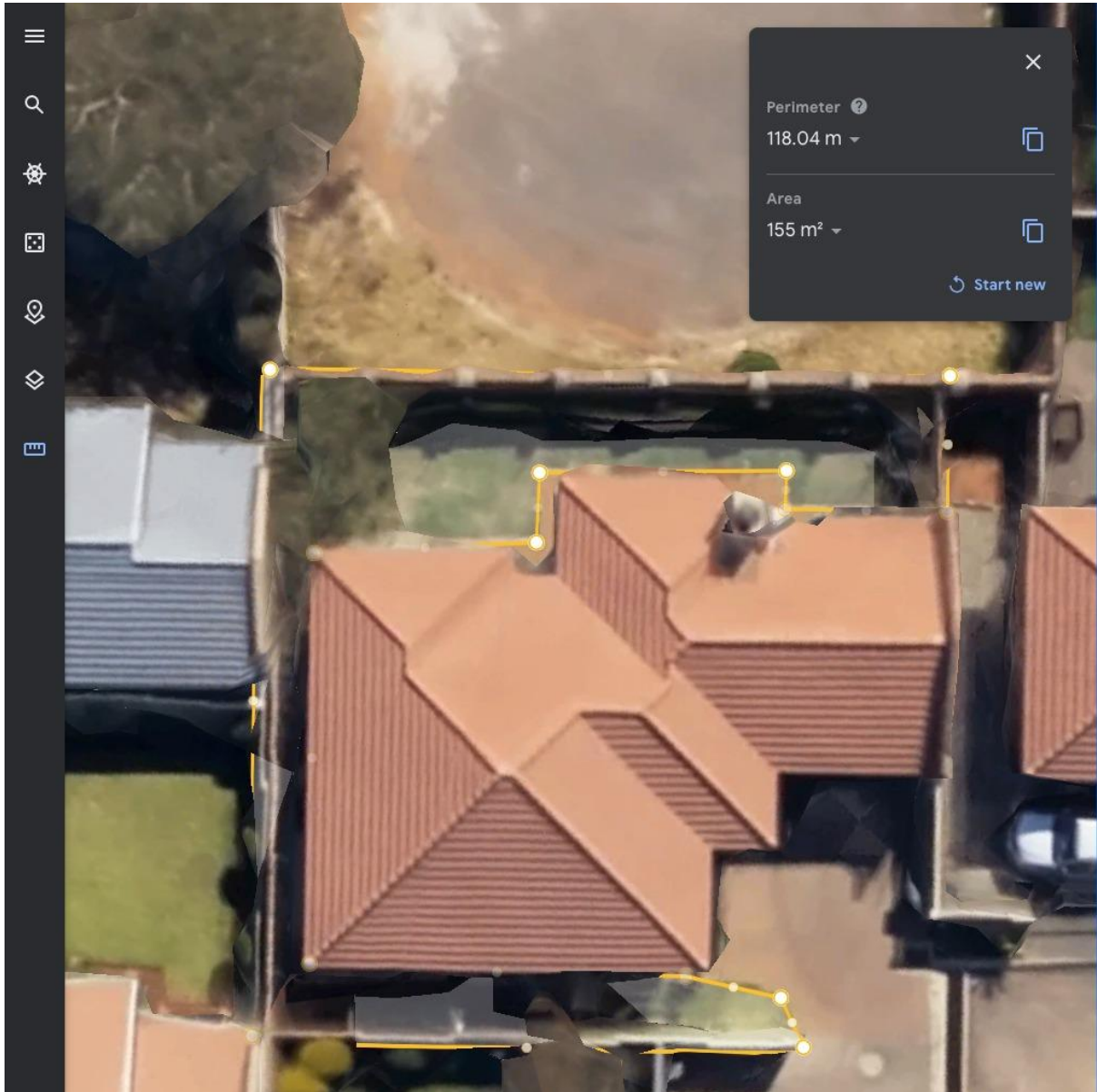
**8** In stock

Did you know that you can collect your order at your nearest store?

– 1 + [Add to trolley](#)

[ADD TO WISHLIST](#) [ADD TO SHOPPING LIST](#)

**Annexure C:**



## Annexure D:

The screenshot displays a Google Maps navigation interface. On the left, a blue sidebar contains a search bar with the text "Wierdaglen Estate, Centurion, 0157". Below the search bar, there are several destination suggestions: "Builders Castle Gate, 498 Cliff Ave, Wat", "Normandy Gardens Estate., 210 Kirkne", "Wierdaglen Estate, Centurion, 0157", and "Add destination". At the bottom of the sidebar, there is an "OPTIONS" button and a link to "Send directions to your phone".

The main map area shows a blue route starting from Wierdaglen Estate and ending at Builders Castle Gate. A callout box indicates a travel time of "59 min" and a distance of "39.5 km". The map includes various landmarks and road names, such as "LYTTELTON MANOR", "WIERDAPARK", "HENNOPSPARK", "ZWARTKOP", "HIGHVELD", "ERASMUS PARK", and "NORMANDY GARDENS ESTATE".

At the bottom of the sidebar, there is a section for route details:

- via Ben Schoeman Fwy/Danie Joubert Fwy/N1 59 min 39.5 km
- 59 min without traffic
- ⚠️ This route has tolls.
- ⚠️ This route has restricted usage or private roads.

A "DETAILS" link is located at the bottom of the sidebar.

**Annexure E:**



Builders a division of Massmart Retail (Pty) Ltd.  
**BUILDERS WAREHOUSE**  
 Reg No: 2008/011666/07  
 VAT No: 4880254414

BWH Erasmus Park  
 Corner Van Ryneveld &  
 Solomon Mahlangu Drive  
 Pretoria 0181  
 0120036770

**HEAD OFFICE: Account Queries**  
 Tel: 011-797-0875  
 Fax: 011-797-0442  
 Private Bag x88  
 Sunninghill, 2157

<b>DOCUMENT NO.</b>	
<b>CUSTOMER VAT NO.</b>	<b>REP NO</b>
	0000
<b>Reference Number</b>	
<b>ACCOUNT NO.</b>	

<b>Customer</b>	<b>Delivery Address</b>
Toffy  Pierre van Ryneveld Park Centurion 0045 South Africa	Toffy  Pierre van Ryneveld Park CENTURION 0045 SOUTH AFRICA

<b>DATE/TIME</b>	<b>CUST.ORDER No.</b>	<b>PROCESSED BY</b>	<b>CUST.TEL.No.</b>	<b>Tax Invoice</b>
03.09.2021 13:19:18				

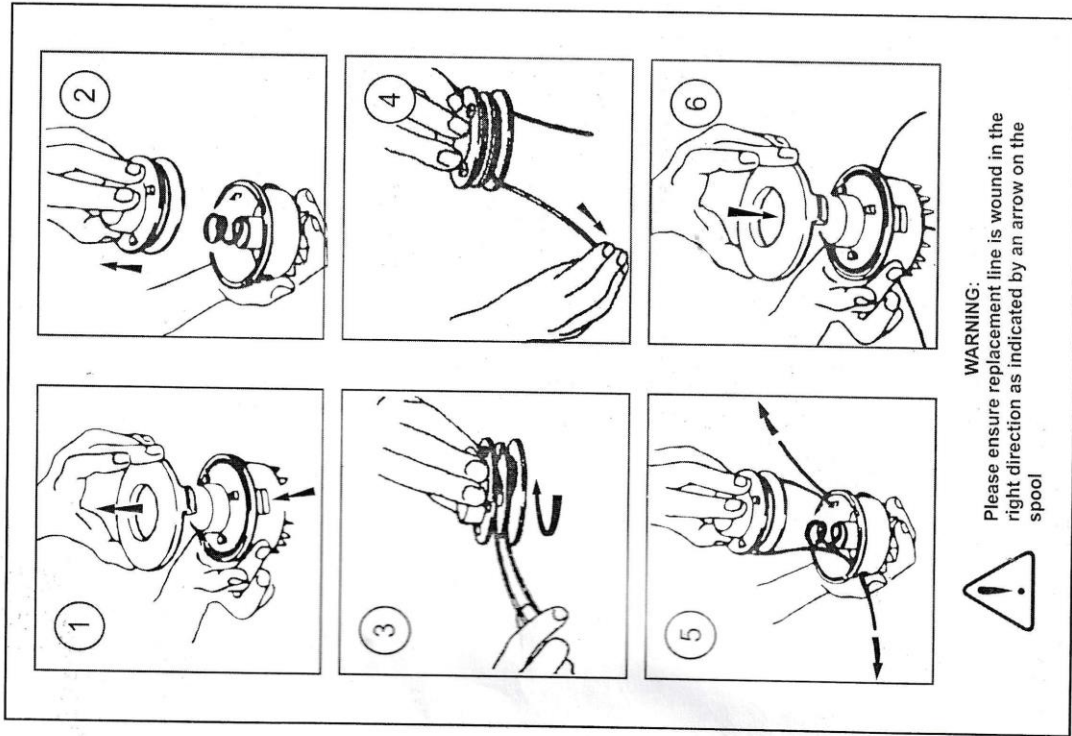
PRODUCT	DESCRIPTION OF GOODS	QTY	DEL TYPE	STORE	UNIT PRICE(excl)	UNIT PRICE(incl)	UNIT DISC.	AMOUNT
6009802940303	CULTERRA LAWN DRESSING 30DM3	22	Customer collect	B206	24.35	28.00	0.00	616.00
6001379107486	WONDER FERTILIZER LAN & C 5KG	1		B206	121.74	140.00	0.00	140.00
6001379101286	WONDER VITALISER LAWN AND LEAF 7.1.3 2KG	1		B206	50.43	58.00	0.00	58.00
9415886916177	LIGHTWORX LED A60 GLS 7W E27 CW	3		B206	25.22	29.00	0.00	87.00
60095260309055	B/PRIDE LOCK INSERT 3 LEV SABS BRS/P	1		B206	152.17	175.00	0.00	175.00
6009161004401	OPTIONAL DELIVERY	1		B206	56.52	65.00	0.00	65.00

Processed on SAP		<b>SUBTOTAL(incl)</b>	1,141.00
PAID BY CREDIT CARD	1,141.00 ZAR	<b>DISCOUNT</b>	0.00
		<b>TOTAL(incl)</b>	1,141.00
		<b>VAT@ 15 %</b>	148.83

**CUSTOMER CARE NUMBER:**  
 0860 284 533  
 E-Mail: info@builders.co.za

**Annexure F:**

**INSTRUCTIONS FOR WEED EATER**



**INSTRUCTIONS FOR LEAF BLOWER**

