



**KWAZULU-NATAL PROVINCE**

**EDUCATION**  
REPUBLIC OF SOUTH AFRICA

**NATIONAL  
SENIOR CERTIFICATE**

Stanmorephysics.com

**GRADE 11**

**MATHEMATICAL LITERACY**

**INVESTIGATION**

**TERM 1 2024**

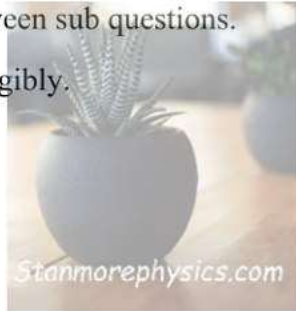
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**MARKS: 50**

**This investigation consists of 9 pages including the Annexure and Answer Sheet.**

## INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
2. Show ALL your calculations.
3. Answer QUESTION 1.4 on the ANSWER SHEET 1 provided.
4. Answer QUESTION 1.5 and 2.3.2 on the ANSWER SHEET 2 provided.
5. Round off ALL the final answers appropriately according to the given context, unless stated otherwise.
6. Leave a space between sub questions.
7. Write neatly and legibly.



**TO INVESTIGATE VARIOUS PAY OPTIONS FOR PHOTOCOPYING MACHINES  
FROM DIFFERENT COMPANIES.**

1. Mafu High School is in need of a new photocopying machine. The School Governing Body (SGB) of Mafu High School requests the Grade 11 Mathematical Literacy class to investigate various options from different suppliers to find the most affordable photocopying machine for the school. The ANNEXURE attached shows quotations from four different companies. You will need the information in these quotations to answer the questions.

Study QUOTATION 1 in the ANNEXURE and answer the questions that follow.

- 1.1 Explain the term “quotation” according to the context. (2)
- 1.2 Use the amounts in quotation 1 and write down the formula that can be used to determine the total monthly cost to make “ $n$ ” copies. (Where  $n$  is the number of copies made). (2)
- 1.3 Write the acronym VAT in full, and explain what VAT is. (4)
- 1.4 One of the SGB members of Mafu High School states that the school will pay the same amount if 5 000 copies are made per month, whether you first calculate the VAT on the rent and price per copy before you get the total, as opposed to when you first add the total cost and then add VAT. Use calculations to verify if this statement made by the SGB member is correct or not.
- Complete TABLE 1 and TABLE 2, as well as the additional values at TABLE 2, as part of your investigation. Use the tables on the answer sheet for this. Do not round off any of your answers, unless stated otherwise (last column of table 2). (8)
- 1.5 Use TABLE 2 and draw a graph of total monthly cost (rounded to the nearest whole number) against number of copies made for the first quotation by CC Copiers on the grid provided on the ANSWER SHEET. (4)



2. Investigate Quotation 2 of Smith & Son and answer the questions that follow.

2.1 Determine the date on which the quotation for Smith & Son expires? (2)

2.2 Explain how the total monthly cost will be calculated for rent and copies made according to the quotation of Smith & Son. (2)

2.3 The following table shows the total monthly cost for rent and copies according to the quotation of Smith & Son:

No of copies	0	500	1 000	1 500	2 000	2 500	C	4 000	5 000
Monthly cost	400	400	A	525	B	775	900	1 150	1 400

Use the table above to answer the questions that follow.

2.3.1 Calculate the value of A, B and C in the table. (4)

2.3.2 Draw the graph of the monthly cost against the number of copies made for QUOTATION 2 on the ANSWER SHEET. (4)

3. Use QUOTATIONS 3 and 4 to answer QUESTION 3.1 and 3.2

3.1 The graph that represents QUOTATION 3 is already drawn on the ANSWER SHEET. Determine the values of D, E and F for QUOTATION 3. (3)

3.2 The graph that represents QUOTATION 4 is also drawn on the ANSWER SHEET. Write down a formula to represent the total monthly cost for QUOTATION 4. (2)

Use all 4 QUOTATIONS in the ANNEXURE, as well as the 4 graphs on the ANSWER SHEET and answer questions 3.3 to 3.5.3

3.3 Write down the name of point Q (1 400; 700) on the graph, hence explain what happens at this point. (2)

3.4 It is estimated that Mafu High School makes 5 000 copies per month. A learner claims that quotation 1 will be the cheapest option for the first year. Describe how you can verify this statement using the graph on the ANSWER SHEET. (2)

3.5 An SGB member makes the remark that it is important to note that the rent of the photocopying machine in QUOTATION 1 has an annual increase of 30%.

Use QUOTATION 1 and 2 to answer the questions that follow.

3.5.1 After how many years will the total annual cost for quotation 1 become more than the total annual cost for quotation 2? Assume that the number of copies is 5 000 per month. (5)



- 3.5.2 After 3 years, the contracts on both the machines of QUOTATIONS 1 and 2 would expire. Verify, with calculations, which quotation will the SGB choose between QUOTATIONS 1 and 2.

(4)

**TOTAL: 50**



## ANNEXURE


### QUOTATION 1

<b>QUOTATION</b>	
<p>CC Copiers P/Bag 2150 Bergville</p>	<p>Quotation no. 3592</p> <p style="text-align: right;">03/01/2024</p>
<p>To: Mafu school Bergville</p>	
Rent per month:	R438,60
Cost per copy:	10,5 c
Rent Increase per year	30%
<p>Quotation valid for 14 days</p> <p><b>All prices exclude VAT at 15%</b></p>	

### QUOTATION 2

<b>QUOTATION</b>	
<p>AJ Smith &amp; Son Office supplies Berg Street 12 Bergville</p>	<p style="text-align: right;">4841</p>
<p>Date of Quotation: 05/01/2024</p> <p>Mafu School Bergville</p> <p>Quotation valid for 30 days</p>	
Rent per month	R400
Price per copy	25 c*
Yearly increase	0%
<p>*The first 1 000 copies at no charge per copy</p> <p><b>All prices include VAT at 15%</b></p>	
<p><i><b>OUR SERVICE OUR PRIDE!!!</b></i></p>	

### QUOTATION 3

		<b>Speck &amp; Co.</b>	
		<b>QUOTATION</b>	
To: Mafu School Bergville		Quotation Nr: 13/282	
		Date: 07/01/2024 Contact person: Jason Cell: 072 345 6789	
Rent per month		<b>D</b>	
Price per copy		<b>E</b>	
Free copies included		<b>F</b>	
All prices include VAT at 15%		Quotation valid for 21 days from date of issue	
Thank you for your business			

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### QUOTATION 4

<b>QUOTATION</b>	
<b>COPYING SOLUTIONS</b>	
Quotation no: 2325/7	
Sim Street 15 Bergville  Customer: Governing body, Mafu School, Bergville Date of quotation: 5/01/2024  <b>All quotations valid for 14 days</b>	
Contract: No renting cost, R0,50 per photocopy  <p style="text-align: center;"><i>The best deals in town!</i></p>	



## ANSWER SHEET 1

### QUESTION 1.4

NAME: ..... GRADE 11: .....

Use the following tables to answer question 1.4. Also, write answers on the dotted lines.

**TABLE 1: Calculating total monthly cost and then VAT**

Number of copies	Price of copies without VAT (in Rand)	Rent of copier without VAT (in Rand)	Total amount for copies and rent without VAT (in Rand)	Total amount for copies and rent with VAT (in Rand)
0	0	438,60	438,60	504,39
500	52,50	438,60	491,10	564,765
1 000	105,00	438,60	543,60	625,14
1 500	157,50	438,60	596,10	685,515
2 000	210,00	438,60	648,60	745,89
2 500	262,50	438,60	701,10	806,265
5 000	525,00	438,60		

**TABLE 2: Calculating VAT on items and then determine total monthly cost**

Price of one copy including VAT: .....

Cost to rent machine including VAT: .....

Number of copies	Cost for copies + VAT (in Rand)	Cost for rent of photocopier + VAT (in Rand)	Total monthly cost including VAT (in Rand)	Round the total monthly cost including VAT off to the nearest whole number (in Rand)
0	0	504,39	504,39	504
500	60,375	504,39	564,765	565
1 000	120,75	504,39	625,14	625
1 500	181,125	504,39	685,515	686
2 000	241,50	504,39	745,89	746
2 500	301,875	504,39	806,265	806
5 000		504,39		

Conclusion: .....

.....



## ANSWER SHEET 2

NAME: ..... GRADE 11: .....

Use the following grid to answer questions 1.5 and 2.3.2

