



SIR ARTHUR LEWIS COMMUNITY COLLEGE
ACADEMIC YEAR (2024/2025) - SEMESTER TWO
END OF SEMESTER EXAMINATION

COURSE CODE : MAT 126
COURSE TITLE : CRAFT MATHEMATICS
LECTURER : VERCILLI GUSTAVE-LORD
DATE : Wednesday April 30th, 2025
TIME : 9:00 - 11 a.m.
DURATION : 2 hours
STUDENT ID # : _____

GENERAL INFORMATION AND INSTRUCTIONS

- Students must sign **IN** and **OUT** on the examination class list.
- Write your ID number on the question paper.
- This paper has **THREE (3)** questions.
- Answer **ALL** questions, in the spaces provided, showing all working where necessary.
- Non-programmable calculators are allowed.

Question #	Student mark	Moderated Mark	Total
1.			18
2.			15
3.			17
TOTAL			50

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Required Formulae

- Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- Simple Interest $I = Prt$

Instruction: Answer ALL questions in the space provided.

1. (a) The table below shows three quadratic expressions. Determine the values of **a**, **b** and **c** for each expression and write the answers under the appropriate column. [4]

Equation	a	b	c
$3 + 5x^2 - 2x$			
$-\frac{2}{5}x^2 - 7$			
$4x - 3x^2$			

- (b) A quadratic curve is shown in Figure 1.

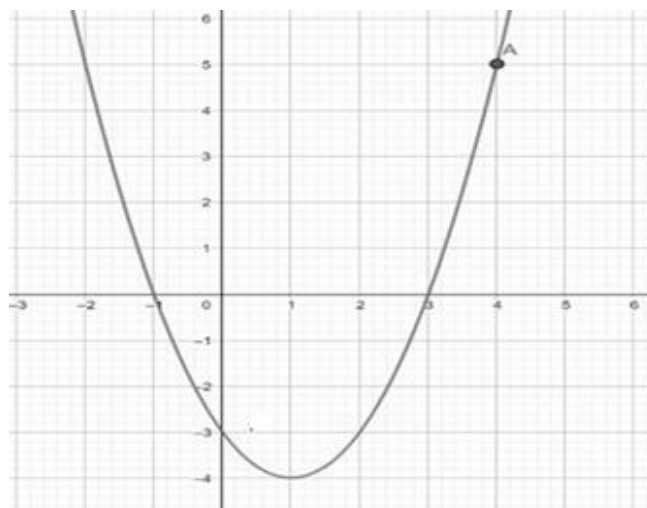


Figure 1

Use the graph in Figure 1 to find the following:

- i. Minimum value [1]
- ii. Axis of symmetry [1]
- iii. Coordinates of the vertex..... [1]
- iv. y - intercept [1]
- v. Roots [1]
- vi. State the coordinates of the point labelled A [1]
- vii. Given that the equation of this curve is $y = x^2 - 2x - 3$, determine the value of y when $x = -4$.

.....

[2]

(c) Solve $-2x^2 - 12x + 3 = 0$ using the quadratic formula. [3]

(d) Solve $x^2 + 6x + 8 = 0$ using factorisation. [3]

Total 18 marks

2. An electrical company carried out a survey on a sample of customers to determine the number of days taken to pay their bills. The data collected was organised into classes as shown in the first column of Table 1.

Table 1

Number of days taken to pay bills	Frequency, f	Class midpoints, x	fx	Cumulative frequency
10-12	3			
13-15	14			
16-18	23			
19-21	12			
22-24	8			
25-27	4			
28-30	1			

i. Complete the table by inserting the correct values under each column. [6]

ii. State the lower- and upper-class boundaries for the class interval 22 -24 [2]

iii. Using the relevant data from the table, calculate the mean number of days taken to pay a bill. [4]

iv. Using relevant data from the table determine the number of customers who paid their bills

i. in 15 days or less [1]

ii. between 18 and 25 days [1]

iii. after 21 days [1]

Total 15 marks

3. (a) A couple needs to purchase a new refrigerator for their small business. The cash price is \$12,600 plus 12% VAT. Calculate the cash price of the refrigerator with VAT. [3]

(b) The couple opted to use a hire purchase plan. Under this plan the refrigerator must be paid over the period of 3 years and a 9.5% add-on rate is charged. Calculate the total to be paid back. [4]

(c) Calculate the monthly payment over the three-year period. [2]

(d) The couple was advised by their accountant, that that the refrigerator would have a salvage value of \$2400 after 10 years. Use the straight-line depreciation method to

i. calculate the annual depreciation expense. [2]

ii. complete the depreciation schedule shown in Table 2 below: [6]

Table 2

End of year	Annual depreciation Expense	Accumulated depreciation	Ending Book Value
1			
2			
3			
4			

Total 17 marks

END OF EXAMINATION