



**SIR ARTHUR LEWIS COMMUNITY COLLEGE
ACADEMIC YEAR (2024/2025) – SEMESTER ONE
END OF SEMESTER EXAMINATION**

COURSE TITLE : CRAFT MATHEMATICS I

COURST CODE : MAT118

TUTORS : TITUS MATHURIN

DATE : Wednesday 11th December 2024

TIME : 1.00 – 3.00 PM

DURATION : 2 HRS.

STUDENT ID# :

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. Write your student's ID number on all the work you hand in.
2. This paper consists of **seven (7)** questions, ***all questions are compulsory.***
3. Total marks for this paper is 80.
4. Write in BLACK or BLUE pen. ***(NO WRITING IN PENCIL)***
5. Show all calculations and working.
6. **Only NON-PROGRAMMABLE calculators are permitted.**
7. A formula sheet is included.
8. Do not use correction fluid.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

FORMULA: Area of circle = πr^2

Area of rectangle = $l * w$

QUESTIONS

1. Lyne must purchase conduits to wire a house. He needs conduits measuring 20mm and 25mm in diameter; each 20mm cost \$4.25 and each 25mm cost \$5.50. The proportion of 25mm conduits he requires to purchase is 0.35. Lyne purchases 225 20mm conduits from M&C Home Depot.
 - i. What is the proportion of 20mm conduits Lyne requires to wire the house?
[1 mark]
 - ii. Calculate the total number of conduits that Lyne purchased from M&C Home Depot.
[2 marks]
 - iii. Calculate the amount of money spent by Lyne at M&C Home Depot to purchase the required number of conduits to wire the house?
[4 marks]
2. Simplify the expression below:
$$\frac{1\frac{2}{3} - \frac{3}{5}\left(\frac{1}{4} \div \frac{3}{16}\right)}{\left(\frac{3}{5} - \frac{3}{10}\right)\left(4 + \frac{3}{4}\right) - \frac{17}{40}}$$
[10 marks]
3. a) Convert the following to percentage:
 - i. $\frac{3}{4}$
[1 mark]
 - ii. 0.05
[1 mark]
 - iii. A sum of money must be divided among four (4) children in the ratio 3:1:2:4 respectively. If the smallest share is \$250.00, calculate the **percentage** of money that would be assigned to the child with the largest share.
[3 marks]
- b) Convert the following to decimals:
 - i. 0.05%
[2 marks]
 - ii. $-\frac{3}{8}$
[2 marks]
- c) Determine the value of 50% of 93% of 75.
[2 marks]
- d) If 25% of a number is 40, determine the value of this number.
[2 marks]
4. a) The area of a rectangle is 494 cm^2 , if the width is 19 cm. Calculate the length of the rectangle.
[3 marks]
- b) A sector measuring 90 degrees has an area of 70m^2 . Determine the total area of the circle from which the sector was cut off.
[2 marks]
5. a) Simplify the following:
 - i. $\log 50 + \log 23 - \log 18$
[2 marks]
 - ii. $2\log_3 2 - \log_3 7 + \log_3 5$
[3 marks]

b) Solve the following equations:

iii. $81^{5t+1} = \left(\frac{1}{729}\right)^{3-7t}$ [7 marks]

iv. $9^{x-5} = 4^{8-x}$ [8 marks]

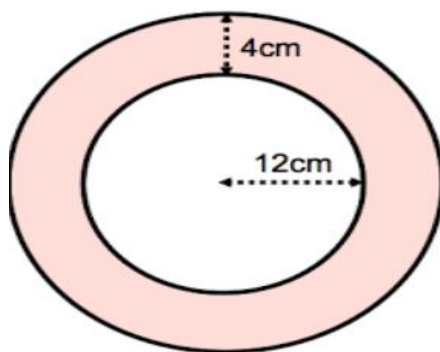
6. a) Convert 30° to radian measure. [2 marks]

b) What is the highest common factor (H.C.F) between the following?

i. 81 and 45 [2 marks]

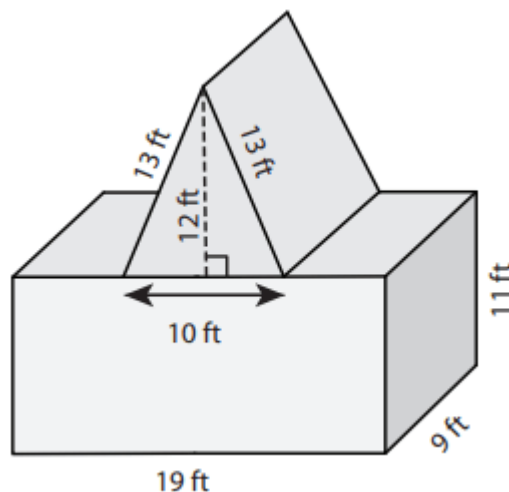
ii. 54 and -72 [2 marks]

7. a) Calculate the area of the enclosed part (shaded area) of the diagram below, Use $\pi = \frac{22}{7}$:



[5 marks]

b) The solid below represents a combined shape.



i. Decompose the solid into its individual shapes. Ensure that all dimensions are clearly stated. [6 marks]

ii. Hence, calculate the surface area for each of the shapes. [7 marks]

iii. Determine the total surface area of the above solid. [1 mark]

END OF EXAMINATION