



Dear Student

Introduction to Mathematics is a foundational mathematics course designed to uplift the level of mathematical skills of Business and Management students. The course is structured in such a way that in the end, confidence in handling simple mathematical calculations is enhanced. The course also aims to improve basic problem-solving skills. This course also gives a foundation for further mathematics and statistics courses in your programme of study.

Course Name: INTRODUCTION TO MATHEMATICS – BUSINESS and MANAGEMENT

Course Code: ITM11S

Department: MATHEMATICS AND STATISTICS

Course Duration: ONE SEMESTER

NQF Level and Credit: NQF LEVEL 5; 10 CREDITS

Pre-requisite: NONE

PRESCRIBED AND RECOMMENDED MATERIAL

PRESCRIBED MATERIAL	Extended Mathematics for IGCSE David Rayner Oxford University Press
RECOMMENDED MATERIAL	Foundation Mathematics L. R Mustoe & M. D. J Barry John Wiley & Sons Ltd. Chichester, 1998



**TUTORIAL LETTER TEMPLATE FOR MARKER-TUTORS
SEMESTER 2/2020**

**INTRODUCTION TO
MATHEMATICS
ITM111S**

Additional reading/Web links	

Moodle Enrollment Key: itm111s

**This First Tutorial Letter was compiled by:
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Please sms your tutor to arrange a telephonic/WebEx tutorial



ASSESSMENT CRITERIA

- You will be doing two assignments, each weighting 20% towards your final CASS Mark.
- You will be writing two tests, each weighting 30 % towards your final CASS Mark. These two tests with a combined weight of 60% replace the normal examination.

These tests dates are:

Dates:	14 November 2020	05 December 2020	06 February 2021
Activity	TEST1	TEST2	TEST3 (Supplementary Test)
Marks	50	50	50
Weights	30%	30%	30%
Venues	If not online , we will communicate to students well in advance	If not online , we will communicate to students well in advance	If not online , we will communicate to students well in advance

Student Notice:

- Please ensure that COLL has your correct cell phone number, in order to avoid delays in receiving critical information that is communicated via sms. Please ensure that you log onto Moodle regularly!!
- For information pertaining to your Student Support Officer, kindly consult the DE Pocket Guide on the COLL website (COLL Announcements – COLL Manuals).
- Assignment submission dates can be found in the Distance Education Information Manual with Assignment due dates, which is available on the COLL Website (COLL Announcements – COLL Manuals)



ASSIGNMENT 01

Instructions/Information:

1. Answer all the questions as neatly as possible
2. Inconsistencies in calculation steps will be penalized
3. Marks will be awarded for answers that originate from your correct working steps
4. Number your solutions correctly
5. Any evidence of work having been copied may lead to loss of marks

Question 1 (17 marks)

- 1.1 If $V = \pi(3R^2 + h^2)$, determine the value of V when $h = 2$, $R = -6$ and $\pi = \frac{22}{7}$. Leave the final answer correct to 2 significant figures. (4)
- 1.2 Without the use of a calculator, evaluate $\log_8 32 - \log_2 4^5 + \log_5 \sqrt{625}$. (7)
- 1.3 Expand and simplify the expression $(x^2 + y)(y - x)$. (2)
- 1.4 Factorize the expression $2ax - 3bx - 6by + 4ay$ completely. (4)

Question 2 (10 marks)

Fruit & Veg shop in Windhoek sells water in 5-litre bottles.

- 2.1 On Wednesday Fruit & Veg shop received N\$2 530 from selling 5-litre bottles of water at N\$11.50 per bottle. How many litres of water were sold on that day? (2)
- 2.2 On Thursday, the shop received N\$x by selling 5-litre bottles of water at N\$11.50 each. In terms of x , how many litres of water were sold on that day? (2)
- 2.3 On Friday the shop received N\$($x - 20$) by selling 5-litre bottles of water at N\$9 each. In terms of x , how many litres of water were sold on that day? (2)
- 2.4 If the number of bottles sold on Thursday equal to the number of bottles sold on Friday, how many bottles of water were sold in each of these two days? (4)



Question 3 (16 marks)

- 3.1 A bus was travelling with 48 passengers. When the bus arrived at the first stop, it dropped off some passengers and picked 4 more people. At the next stop, the bus dropped half of the passengers. There were now 14 passengers on the bus. Formulate a linear equation from the statement and calculate the number of passengers who were dropped off by the bus at the first stop.

(6)

- 3.2 The area of every rectangle is the product of it's width and it's length. A particular rectangular soccer field has an area of 11200 square metres. Its length is 20 metres short of twice its width. Use the quadratics formula to calculate the width and length of this soccer field. You will score a zero if your quadratic formula is not shown or if incorrectly written or if used incorrectly.

(10)

Question 4 (7 marks)

- 4 Solve the following inequality and represent your solution on a number line:

$$\frac{2x+4}{7} < 3x+5 \leq \frac{1}{2}(x+12) \quad (7)$$

TOTAL MARKS FOR ASSIGNMENT 01: 50 MARKS

END OF ASSIGNMENT 01



ASSIGNMENT 02

Instructions/Information:

1. Answer all the questions as neatly as possible
2. Inconsistencies in calculation steps will be penalized
3. Marks will be awarded for answers that originate from your correct working steps
4. Number your solutions correctly
5. Any evidence of work having been copied may lead to loss of marks

Question 1 (9 marks)

Out of 360 students interviewed, it was found that 185 students speak Spanish (S), 55 students speak neither Spanish nor Portuguese. Furthermore, $(x + 7)$ students speak Portuguese (P) only and x speak both languages.

- 1.1 Show the information as given above on a Venn diagram. (5)
- 1.2 Determine the value of x . (2)
- 1.3 How many students speak Portuguese? (2)

Question 2 (14 marks)

Let $A = \begin{pmatrix} 2 & 5 \\ 0 & 1 \end{pmatrix}$, $B = \begin{pmatrix} a & 2b \\ 0 & c \end{pmatrix}$ and $C = \begin{pmatrix} 11 & -5 \\ 3 & -4 \end{pmatrix}$, be three matrices.

- 2.1 Determine the matrix C^2 . (4)
- 2.2 Calculate matrix D such that $2A + D = 4C$. (3)
- 2.3 Determine the values of a, b, c such that $AB = \begin{pmatrix} 4 & 19 \\ 0 & 3 \end{pmatrix}$. (7)



Question 3 (11 marks)

3.1 Find the sum of the first 30 terms of the series $3, 5 \cdot 5, 8, 10 \cdot 5, \dots$ (3)

3.2 The fourth term of a geometric progression is 27 and the seventh term is 729.

3.2.1 Determine the first term and the common ratio of the progression. (5)

3.2.2 Calculate the sum of the first ten terms of the progression. (3)

$$\begin{aligned} S_{10} &= \frac{1(3^{10} - 1)}{3 - 1} \\ &= \frac{59048}{2} \\ &= 29524 \end{aligned}$$

Question 4 (16 marks)

4.1 Copy and complete the following part of an invoice: (6)

Item	Price (N\$)
120 chairs @ N\$250 per pack of ten chairs	
5 canopies @ N\$140 each	
Sub total	
VAT on subtotal @ 15.5%	
Total	
Less deposit	2500.00
Balance to pay	

4.2 If twelve men can jointly complete a task in thirty-six days, how many men could have jointly completed that task in 24 days assuming that all men worked at the same rate?

(3)



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- 4.3 Maria invested N\$15000.000 at 4.5% per annum for 3 years with interest compounded quarterly. Peter also invested N\$15000.00 at 4.5% for 3 years, interest simple. Use calculations to determine who made a wiser investment. (7)

**TOTAL MARKS FOR ASSIGNMENT 02: 50 MARKS
END OF TUTORIAL LETTER**