



FOUNDATION PROGRAM | MATH UNIT

FP— MATH LEVEL 2 (PURE) - FPM 102B

MATH MODEL PAPER - FINAL EXAM - TERM (2023-24)

Student Name							
Student ID							Date:
Section							Duration: 1 hour 45 minutes
Instructor	Mohammad Mustafa, Waqar Khan, Tareq Al Khushban						

Instructions:

- 1) The exam has 5 main questions with a scratch sheet at the end.
- 2) Please turn off your mobile phone.
- 3) Use only a blue or black pen.
- 4) No talking, passing objects or looking in the direction of another student's paper. Any of these behaviors will be considered cheating.

Dhofar University's Academic Integrity Policy (Policy No. DU-AC-007) is intended to foster hard work, honesty, and responsibility. It strictly prohibits all forms of academic misconduct, including cheating and collusion, plagiarism, and impersonation. By reading this pledge, I affirm that I have upheld the AIP and that my submitted work is my own and therefore, free of any form of cheating.

تهدف سياسة النزاهة الأكاديمية بجامعة ظفار (السياسة رقم DU-AC-007) إلى تعزيز العمل الجاد والأمانة والمسؤولية و تحظر تمامًا جميع الأشكال التي تخالف النزاهة الأكاديمية ، بما في ذلك الغش والتواطؤ والسرقة الأدبية والانتحال .
من خلال قراءتي لهذا التعهد أؤكد أنني ملتزم بسياسة النزاهة الأكاديمية و أن عملي هذا هو خاص بي ويخلو من أي شكل من أشكال الغش.

Student's Signature: _____

Marking Grid

Question	Question 1 MCQ's (out of 10)	Question 2 (out of 11)	Question 3 (out of 6)	Question 4 (out of 8)	Question 5 (out of 5)	Total / 40 marks
Marks obtained						

Marker's name:		Moderator's name:	
Marker's signature:		Moderator's signature:	
Date:		Date:	

Question 1: MULTIPLE CHOICE.**(10 Marks)**

1)	Which set of data has a median of 5? a. 3, 10, 5, 12, 20 b. 5, 20, 16, 17, 10 c. 5, 2, 9, 10, 3 d. 4, 10, 1, 2, 5
2)	Participant 1,2,3,4,5 start a race. In how many different orders can they finish the race? a. 120 b. 60 c. 1 d. None
3)	When three coins are tossed, the number of possible outcomes is: a. 4 b. 8 c. 36 d. 2
4)	When one die is rolled., the probability of “having odd number “ occurs: a. $\frac{1}{2}$ b. $\frac{1}{6}$ c. $\frac{1}{3}$ d. $\frac{3}{4}$
5)	The coordinates of the point P for the angle $t = \frac{\pi}{2}$ in unit circle are: (a) (1,0) (b) (0,1) (c) (-1,0) (d) (0,-1)
6)	The amplitude of the function $f(x) = 4 \sin 5x$. (a) $\frac{1}{2}$ (b) -4 (c) 5 (d) 4
7)	The Period of the function $f(x) = 3 \sin \frac{1}{3} x$. (a) $\frac{\pi}{3}$ (b) 6π (c) 3π (d) π
8)	$\sin \left(-\frac{\pi}{2}\right) =$ (a) 1 (b) -1 (c) 0 (d) $\frac{1}{2}$
9)	$\cos (-x) =$ (a) $\cos x$ (b) $\sin^2 x$ (c) $-\cos x$ (d) $1 - \sin^2 x$
10)	If $\tan x = \sqrt{3}$, then $\cot x =$ (a) -1 (b) 1 (c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{3}$

Question 2: Prove the following two identities:

(11 Marks)

1) $\frac{1}{1-\cos x} + \frac{1}{1+\cos x} = 2 \csc^2 x$

(6 Marks)

2) $\sin^4 x - \cos^4 x = 2 \sin^2 x - 1$

(5 Marks)

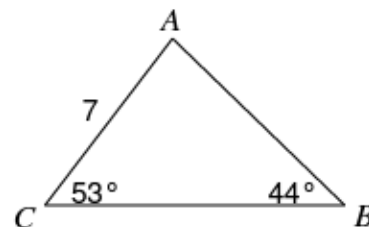
Question 3: in the following graph of triangle find:

(6 Marks)

(Use the law of sine, round to nearest hundredth)

1) $CB =$

(3 Marks)



2) $AB =$

(3 Marks)

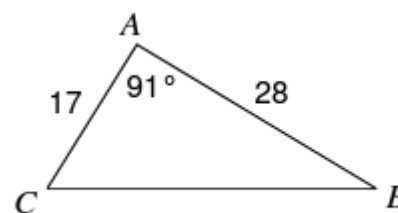
Question 4: in the following graph of triangle find:

(8 Marks)

(Use the law of cosine, round to nearest hundredth)

1) $CB =$

(4 Marks)

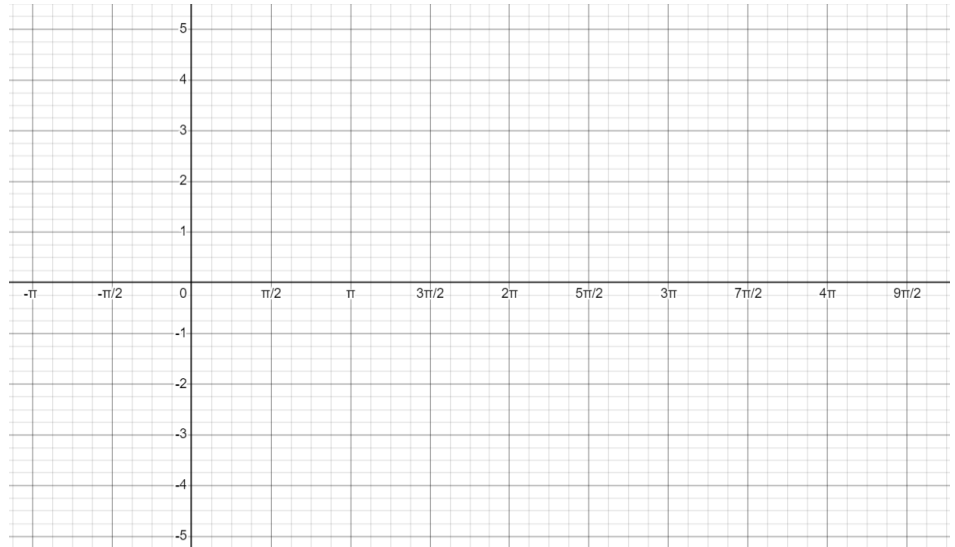


2) (The angle C) =

(4 Marks)

Question 5:**(5 Marks)**If $f(x) = 3\sin(-2x)$, then:

1) Sketch the graph of this function.

(4 Marks)

2) Find the range of this function =

(1 Mark)

End of Model paper - Final Exam

SCRATCH SHEET

Name: _____

Note:

1. This scratch sheet will not be marked.
2. Do not detach it from the rest of exam papers.