



DHOFAR UNIVERSITY
FOUNDATION PROGRAM | MATH UNIT
FPM 102B – Math Level – 2 (Applied)

Model Paper
Term (2023-24)

Student Name						
Student ID						Date:
Section						Duration: 1 hour 15 minutes
Instructor						

Instructions:

- 1) Be sure that the exam has 4 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 تماما 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: _____

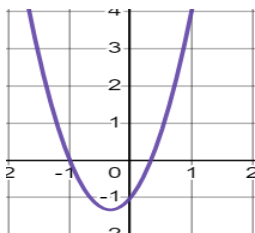
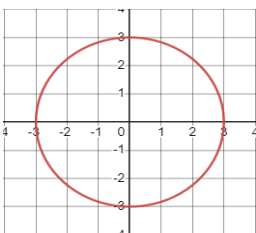
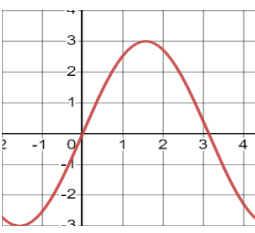
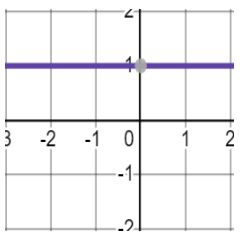
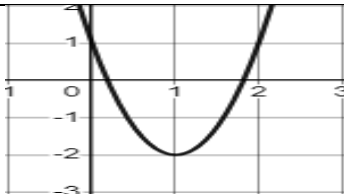
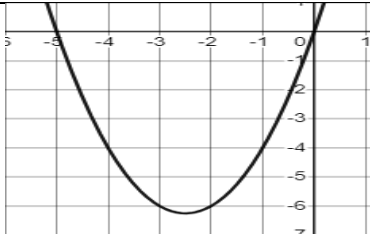
Marking Grid

Question	Question 1 (out of 10)	Question 2 (out of 8)	Question 3 (out of 3)	Question 4 (out of 9)	Total / 30 marks
Marks obtained					

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

Question 1: MULTIPLE CHOICE. Circle the correct answer.

(10 Marks)

1)	Which one of the following represents a function? a. $\{(0,1), (1,0), (2,1), (1,3)\}$ b. $\{(1,1), (2,1), (3,1), (4,1)\}$ c. $\{(0,1), (0,2), (0,3)\}$ d. $\{(0,1), (0,2), (1,3)\}$
2)	What is domain of the function $f(x) = \frac{-1}{x}$ a. \mathbb{R} b. $\mathbb{R} \setminus \{0\}$ c. $\mathbb{R} \setminus \{1\}$ d. $\mathbb{R} \setminus \{-1\}$
3)	Which one of the following graphs is not function? <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>a.</p>  </div> <div style="text-align: center;"> <p>b.</p>  </div> <div style="text-align: center;"> <p>c.</p>  </div> <div style="text-align: center;"> <p>d.</p>  </div> </div>
4)	The range of the function $f = \{(1, 6), (2, 6), (3, 5), (4, 5)\}$: a. $\{1,2,3,4\}$ b. $\{5,6\}$ c. $\{5\}$ d. $\{6\}$
5)	Which of the following functions is a quadratic function? a. $f(x) = 5x + 2$ b. $f(x) = x^2$ c. $f(x) = x^3$ d. $f(x) = e^x$
6)	The minimum in shown quadratic function is: <div style="text-align: right; margin-right: 100px;">  </div>
7)	The x-intercepts in shown quadratic function are: <div style="text-align: right; margin-right: 100px;">  </div>
8)	If $20^x = 20$ then $x =$ a. 1 b. -1 c. 20 d. -20
9)	If $6^x = \frac{1}{6}$ then $x =$ a. -1 b. $\frac{1}{6}$ c. 6 d. 1
10)	If $(8)^{3x} = (8)^9$ then $x =$ a. -3 b. 3 c. 8 d. -8

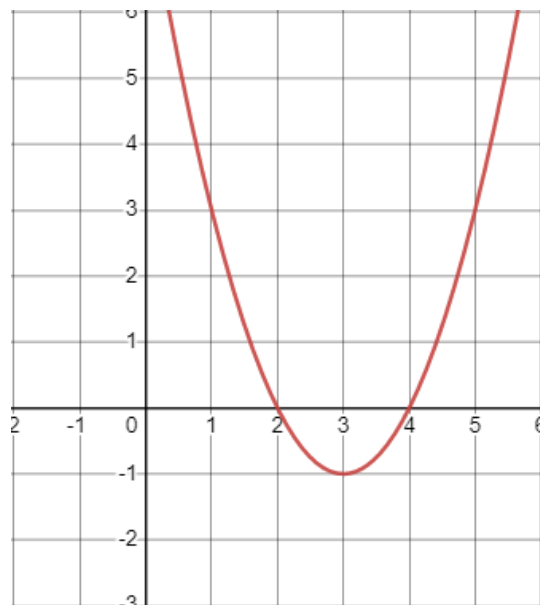
Question 2:

(8 Marks)

a) Given the graph of a quadratic function, find:

(4 Marks)

1. Line of symmetry
2. Vertex
3. Minimum
4. x-intercepts of quadratic function if any



b) Find the domain of the function:

$$f(x) = \sqrt{40 - 10x}$$

(4 marks)

Question 3: (3 Marks)

Without graphing, determine whether the given equation has a graph that is symmetric with respect to the x-axis, the y-axis, the origin, or none of these.

$$xy^2 + 10x^2 = 4$$

Question 4: (9 Marks)

a) Solve the following exponential equations.

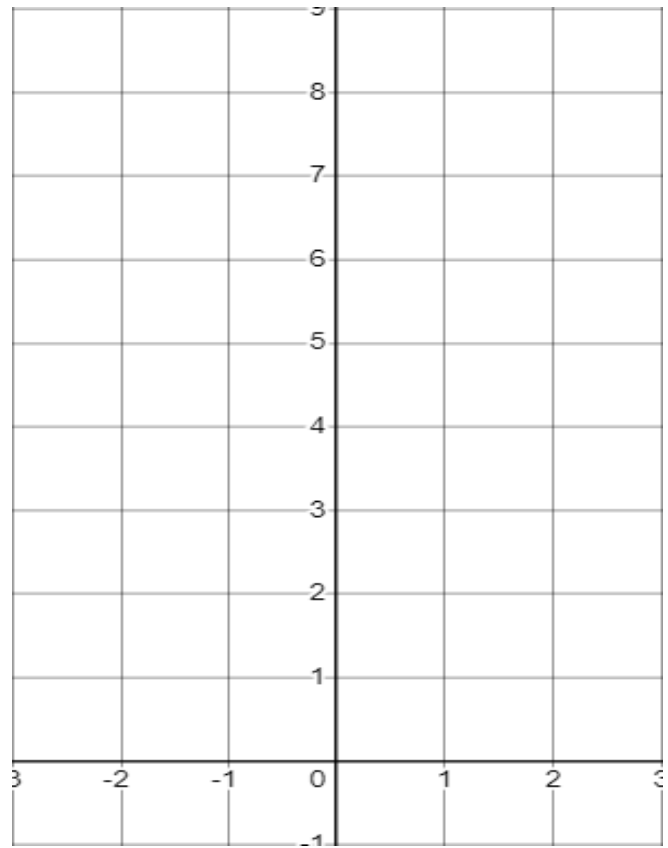
(4 Marks)

$$2^{6x-1} \cdot 2^x = \frac{1}{8}$$

b) Graph the exponential function:

$$f(x) = 3 + 2^x$$

(5 marks)



SCRATCH SHEET

Name: _____

Note:

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