Saudi Electronic University

Mid Term (Form A) | **Fundamentals of Mathematics**

Date: 28.11.2016 | **MATH 001**

Student Name (ARABIC):

Student ID:

Instructor Name:

CRN:

Instructions:

This exam duration is **1 hour.**
This is NOT an open book exam.
The use of calculators is permitted.
The use of mobile phones is NOT permitted.
Please answer all the **5** questions.
The number of pages are **4 pages** including this page.

Marking Scheme:

	Question	Score
1	(5 Marks)	
2	(5 Marks)	
3	(4 Marks)	
4	(4 Marks)	
5	(2 Marks)	
	TOTAL	

Question 1: (5 points)

Choose the correct answer, write your answer in the table below:

1. Which of the following is not a true statement **:**

a) $-3 \le -3$ b) $-3 < -3$ c) $-3 \ge -3$ d) $-3 = -3$

2. The slope of the horizontal line is :

a) 1 b) -1 c) 0 d) Not defined

3. $LCM(x^2-9,(x+3)^2) =$ is:

a) $(x+3)^2(x-3)$ b) $(x^2-9)(x+3)^2$ c) $x+3$ d) $(x+3)(x-3)$

4. The solution set for the equation $x^2 = -4$:

a) $\{-2,2\}$ b) $\{-4,4\}$ c) $\{-16,16\}$ d) ϕ

5. The result of $\left(5x^2y^3\right)^2$ is:

a) $25x^4y^5$ b) $10x^4y^6$ c) $25x^4y^6$ d) $25x^2y^3$

Question	1	2	3	4	5
Answer	B	C	A	D	C

Question 2: (5 points)

Determine whether each statement is true or false:

1. The product of an even numbers of negative numbers is negative……F……

2. Some Equations have no solutions……T……

3. The $x-$ and $y-$ intercepts of $y=mx$ are both $(0,0)$ ……T……

4. Every Polynomial with four terms can be factored by grouping……F…

5. All Trinomials are Polynomials……T…….

Question 3: (4 points)

1. Factor completely x^4-y^4

Sol:

$$x^4-y^4=(x^2-y^2)(x^2+y^2)$$
$$=(x-y)(x+y)(x^2+y^2)$$

2. Perform and simplify: $\dfrac{t^2}{t^2-4}\div\dfrac{t^2-3t}{t^2-5t+6}$

Sol:

$$\frac{t^2}{t^2-4}\div\frac{t^2-3t}{t^2-5t+6}=\frac{t^2}{t^2-4}\times\frac{t^2-5t+6}{t^2-3t}$$
$$=\frac{t\times t}{(t-2)(t+2)}\times\frac{(t-3)(t-2)}{t(t-3)}=\frac{t}{t+2}$$

Question 4: (4 points)

Solve the following Equation and Inequality:

1. $3x^2 - 10x = 8$

Sol:

$3x^2 - 10x - 8 = 0$

$(3x + 2)(x - 4) = 0$

$3x + 2 = 0 \qquad x - 4 = 0$

$x = -\frac{2}{3} \qquad x = 4$

$Solution\ set = \{-\frac{2}{3}, 4\}$

2. $\frac{x}{6} + \frac{5x}{8} \le 2x + 1$

Sol:

$24\left(\frac{x}{6} + \frac{5x}{8} \le 2x + 1\right)$

$4x + 15x \le 48x + 24$

$-29x \le 24$

$x \ge -\frac{24}{29}$

Question 5: (2 points)

Graph the equation .using the intercepts $y = 2x - 4$

Sol:

x-intercept $(2, 0)$

y-intercept $(0, -4)$