Saudi Electronic University

Final Examination (Form A) | **Fundamentals of Mathematics**

Date: **9/1/2017** | **MATH 001**

Student Name (ARABIC):

Student ID:

Instructor Name:

CRN:

Instructions:

This exam duration is **2 hours.**
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 **7 pages** including this page.

Marking Scheme:

	Question	Score	
1	(20 Marks)		
2	(12Marks)		
3	(6 Marks)		
4	(4 Marks)		
5	(8 Marks)		**Signature**
	TOTAL		

Question 1: (20 points)

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

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1. The Slope of the line $2x+3y=4$ is equal to :

a) $-\frac{2}{3}$ b) -2 c) $-\frac{3}{2}$ d) 2

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2. The domain of the function $f(x)=\frac{2}{x-5}$ is :

a) $\{x \mid x \text{ is a real number and } x \neq 2\}$

b) $\{x \mid x \text{ is a real number and } x \neq 5\}$

c) $\{x \mid x \text{ is a real number and } x > 5\}$

d) All real numbers.

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3. The interval notation for the set $\{x \mid 1 \leq x < 5\}$ is:

a) $[1,5)$ b) $(1,5]$ c) $[1,5]$ d) $(1,5)$

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4. $\sqrt[4]{(x-5)^4} =$

a) 1 b) 0 c) $x-5$ d) $|x-5|$

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5. The set of numbers for which the rational expression $\frac{x-8}{x^2-25}$ is not defined is :

a) $\{-25,25\}$ b) $\{-12.5,12.5\}$ c) $\{-5,5\}$ d) $\{8\}$

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6. One of the following is a perfect square:

a) x^2+5x+4 b) x^2-5x+1 c) x^2+4 d) x^2+6x+9

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7. The translation of "Three less than twice a number" is:

a) $3x-2$ b) $2x-3$ c) $3-2x$ d) $2x+3$

8. The fraction $\frac{y}{9x}$ is equivalent to $\frac{7}{9}$ when $y=$

a) 7 b) 9 c) $7x$ d) $9x$

9. One of the following relations defines a function :

a) $\{(-6,4),(-5,4),(-4,4),(-4,3)\}$

b) $\{(1,2),(4,-4),(3,6),(3,5)\}$

c) $\{(0,0),(1,1),(2,2),(0,4)\}$

d) $\{(0,5),(2,5),(9,5),(-3,5)\}$

10. The result of the division $\frac{\sqrt[3]{16x^5y^6}}{\sqrt[3]{2x^2y^3}}$ is:

a) $4xy^2$ b) $8x^2y^2$ c) $2x^2y$ d) $2xy$

11. $(-4,3]\cup[0,6)=$

a) $[0,3]$ b) $(3,6]$ c) $(-4,6)$ d) $(-4,0]$

12. The range of the function $f(x)=x^2$ is :

a) $[0,\infty)$ b) $\{1,4,9,...\}$ c) $\mathbb{R}$ d) $(0,\infty)$

13. Let $f(x)=3x^2+1$ and $g(x)=x-2$, then $f(g(5))=$

a) 76 b) 28 c) 148 d) 3

14. The result of $\frac{x+1}{x^2-1} \div \frac{x+1}{x-1}$ is:

a) $\frac{1}{x+1}$ b) $\frac{x+1}{(x-1)^2}$ c) x^2-1 d) $x+1$

15. The solution point of the system $\begin{cases} x+2y=13 \\ -x+3y=12 \end{cases}$ is:

a) $(0,4)$ b) $(1,6)$ c) $(3,5)$ d) $(-4,2)$

16. $GCF(2xy^3, 4x^2y^2z^2) =$

a) $4x^2y^3z^2$ b) $2xy^2$ c) $2xyz$ d) $8xy^2$

17. What percent of 125 is 30 ?

a) 0.24% b) 45% c) 4.17% d) 24%

18. One of the following is a factor of $x^2-7x+10$

a) $x-5$ b) $x+10$ c) $x-7$ d) $x+2$

19. The set $\left\{\frac{a}{b} \mid a,b \in \mathbb{Z} \text{ and } b \neq 0\right\}$ is called the set of :

a) Whole Numbers b) Integers c) Rational Numbers d) Natural Numbers

20. The scientific notation of 0.000265 is:

a) 26.5×10^{-5} b) 2.65×10^{-4} c) 26.5×10^{5} d) 2.65×10^{4}

Question	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Answer										
Question	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Answer										

Question 2: (12 points)

Solve the following equations:

1. $\frac{1}{x}+\frac{2}{3x}=10$

2. $x-7=2\left(\sqrt{x+1}\right)$

3. $\left|2x-8\right|=x+1$

Question 3: (6 points)

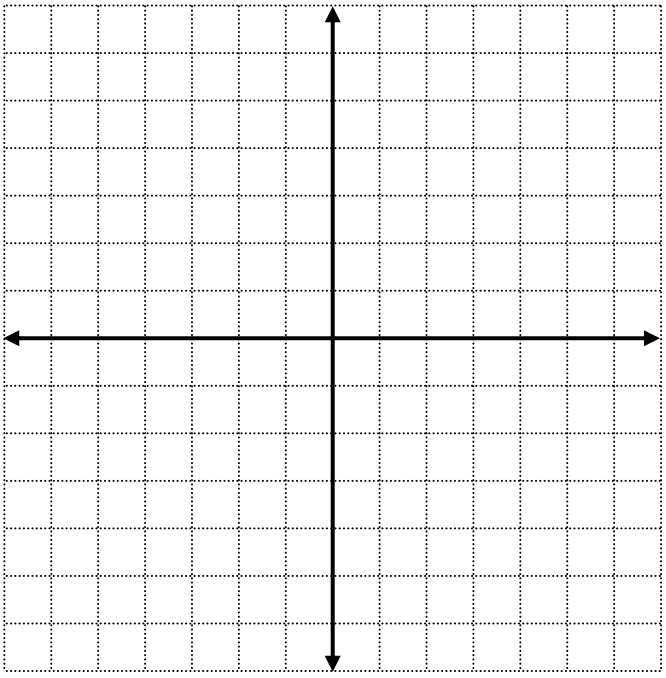
Solve the following inequalities, write the solution set in interval notation:

1. $\left|\frac{1}{4}y-6\right|>3$

2. $3\le 5-2x<7$

Question 4: (4 points)

Graph $f(x)=|x-3|$



Question 5: (8 points)

1. Write an equation of the line containing the points $(-2,7)$ and $(4,-3)$

2. Solve this system .

$$\begin{cases} x+y+z=4 \\ x-2y-z=1 \\ 2x-y-2z=-1 \end{cases}$$