



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)	
TOTAL	



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Form A

Question 1: (20 points)

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

1. The Slope of the line $x = 12$ is:

- a) 12 b) -12 c) 0 d) Undefined
-

2. The domain of the function $f(x) = 5x^2 - x + 3$ is :

- a) $\{x \mid x \text{ is a real number and } x \neq 5, 3\}$
b) $[-1, 6]$
c) $\{x \mid x \text{ is a real number and } x > 8\}$
d) All real numbers.
-

3. The interval notation for the set $\{x \mid 8 \leq 2x < 20\}$ is:

- a) $[4, 10)$ b) $[8, 20)$ c) $[6, 18)$ d) $(4, 10]$
-

4. One of the following numbers is an integer.

- a) 2.7 b) $\sqrt{2}$ c) -5 d) $\frac{2}{3}$
-

5. The opposite of $-\frac{3}{5}$ is:

- a) $-\frac{3}{5}$ b) $\frac{3}{5}$ c) $\frac{5}{3}$ d) $-\frac{5}{3}$
-

6. One of the following is a difference of squares:

- a) $x^2 + 100$ b) $16x^2 - 25$ c) $4x - 81$ d) $x^2 + 6x + 9$
-

$(4x - 5)(4x + 5)$

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7. $LCM(x^2-1, x+1) = \frac{(x-1)(x+1)(x+1)}{(x+1)} = (x-1)(x+1) = x^2-1$

a) x^2-1 b) $x+1$ c) $(x-1)(x+1)^2$ d) $x-1$

8. If a system of two equations in two variables has one solution or no solutions, then the equations are.....

- a) Inconsistent b) Consistent c) Independent d) Dependent

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) $\{(-1, 3), (0, 3), (3, 3), (4, 3)\}$

10. The x -intercept for the equation $5x-10y=20$ is: $y=0 \Rightarrow 5x=20 \Rightarrow x=4$

- a) (4, 0) b) (0, -2) c) (15, 0) d) (0, 30)

11. The solution set for the equation $|x-1|=5$ is: $* x-1=5 \Rightarrow x=6, -(x-1)=5 \Rightarrow -x+1=5 \Rightarrow x=-4$

- a) $\{-5, 5\}$ b) $[-4, 6]$ c) $\{-4, 6\}$ d) $[-5, 5]$

12. The value of $\left(\frac{3}{5}\right)^0$ is :

- a) 0 b) 1 c) $\frac{3}{5}$ d) $\frac{5}{3}$

13. Let $f(x)=5x^2-1$ and $g(x)=x+3$, then $f(g(0)) = [5(x+3)^2-1] = 5(3)^2-1 = 5(9)-1 = 44$

- a) 44 b) 2 c) 29 d) 3

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14. Parallel lines have the same

- a) x -intercept b) y -intercept c) Slope d) None

15. The translation of "some number increased by five" is

- a) $5x$ b) $x+5$ c) $x-5$ d) $x \geq 5$

16. The equation of a horizontal line containing the point $(2, -5)$ is:

- a) $x=2$ b) $x=-3$ c) $y=2x-5$ d) $y=-5$

17. 120 is 40% of what number?

- a) 48 b) 300 c) 250 d) 70

18. The result of $\frac{8x^3 + 4x^2 - 2x}{2x}$ is:

- a) $16x^4 + 8x^3 - 4x^2$ b) $6x^2 + 2x - 1$ c) $4x^2 + 2x$ d) $4x^2 + 2x - 1$

19. $[2,5) \cap (3,7) =$

- a) $(3,5)$ b) $[2,7]$ c) $[2,3)$ d) $(5,7]$

20. The decimal notation for the number 2.35×10^{-5} is:

- a) 235000 b) 0.0000235 c) 0.0000235 d) 2350000

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

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**Question 2:** (12 points)

Solve the following equations:

1. $|3x-7|=x \Rightarrow |3x-7|-x=0$

$$\textcircled{20} 3x-7-x=0 \quad \therefore 2x=7 \quad \therefore \boxed{x_1 = \frac{7}{2}}$$

$$\textcircled{20} -(3x-7)-x=0 \quad \therefore -3x+7-x=0 \quad \therefore -4x=-7$$

$$\therefore \boxed{x_2 = \frac{7}{4}}$$

$$\therefore \left. \begin{array}{l} x_1 = \frac{7}{2} \\ x_2 = \frac{7}{4} \end{array} \right\} \#$$

2. $x^2+7x+6=0$

$$x^2+6x+x+6=0$$

$$x(x+6)+x+6=0$$

$$(x+6)(x+1)=0$$

$$\therefore x+6=0 \quad \therefore x=-6$$

$$\therefore x+1=0 \quad \therefore x=-1$$

$$\therefore \boxed{x_1 = -6, x_2 = -1} \#$$

3. $\frac{x+1}{x-2} = \frac{x+3}{x-5}$

$$\therefore (x+1)(x-5) = (x-2)(x+3)$$

$$\therefore \cancel{x^2} - 5x + x - 5 = \cancel{x^2} - 2x + 3x - 6$$

$$\therefore -5x + x - 5 = -2x + 3x - 6$$

$$\therefore -4x - 5 = x - 6$$

$$\therefore -4x - x = -6 + 5$$

$$\therefore -5x = -1$$

$$\therefore \boxed{x = \frac{1}{5}} \#$$

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Question 3: (6 points)

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

1. $|3x-1| > 8$

$$\begin{aligned} \Rightarrow 3x-1 > 8 & \quad \therefore 3x > 9 & \quad \therefore x > 3 & \quad \therefore x \in (3, \infty) \end{aligned}$$

$$\begin{aligned} \Rightarrow -(3x-1) > 8 & \quad \therefore -3x+1 > 8 & \quad \therefore -3x > 7 \\ & \quad \therefore x < -\frac{7}{3} & \quad \therefore x \in (-\infty, -\frac{7}{3}) \end{aligned}$$

$$\therefore x \in (-\infty, -\frac{7}{3}) \cup (3, \infty) \quad \#$$

2. $2(5x-1)+4x \leq 6x-10$

$$10x-2+4x \leq 6x-10$$

$$14x-2 \leq 6x-10$$

$$14x-6x \leq -10+2$$

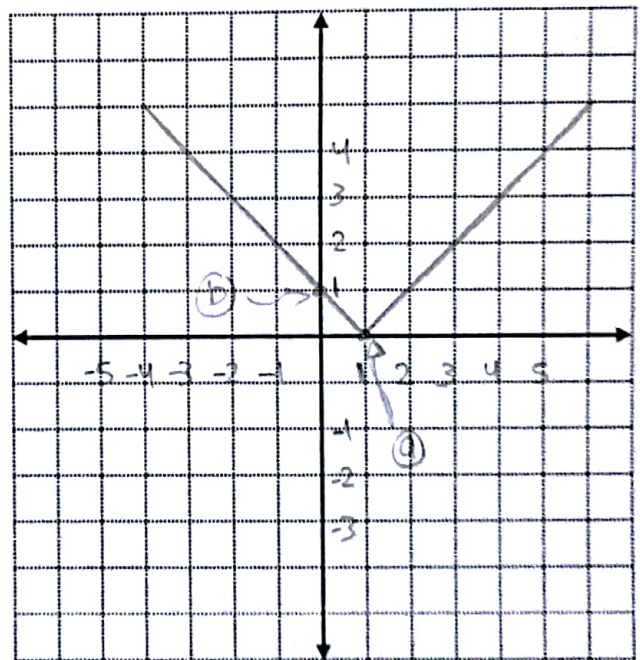
$$8x \leq -8$$

$$\boxed{x \leq -1} \quad \#$$

Question 4: (4 points)Graph $f(x) = |x-1|$

$$a \Rightarrow x-1=0 \quad \therefore x=1 \quad \underline{\underline{(1,0)}}$$

$$b \Rightarrow \text{Put } x=0 \\ \therefore f(x)=1 \quad \rightarrow \underline{\underline{(0,1)}}$$



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Question 5: (8 points)

1. Write an equation of a Line containing the points (1,3) and (2,5)

$$\Rightarrow \text{slope} \rightarrow \frac{5-3}{2-1} = \frac{2}{1} = 2$$

$$\therefore y = 2x + C \quad \begin{matrix} (1,3) \\ x \quad y \end{matrix}$$

$$\therefore 3 = (2 \times 1) + C$$

$$\therefore 3 = 2 + C \quad \therefore C = 1$$

$$\therefore y = 2x + 1 \quad \#$$

2. Solve this system .

$$\begin{cases} x+y=5 \\ x-2y=-1 \end{cases}$$

$$\begin{array}{r} x + y = 5 \\ \ominus \quad \oplus \\ +x - 2y = -1 \\ \hline 3y = 6 \end{array}$$

$$\therefore y = 2$$

$$\rightarrow x + y = 5 \quad \text{let } y = 2$$

$$\therefore x + 2 = 5 \quad \therefore x = 3$$

$$\therefore (x, y) = (3, 2) \quad \#$$

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