

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 is **8 pages** including this page.

Marking Scheme:

Question	Score
1 (30 Marks)	
2 (4 Marks)	
3 (6 Marks)	

4 (6 Marks)		
5 (4 Marks)		Signature
TOTAL		

Question 1: (30 points)

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

1. The degree of the polynomial $8x^4 + 3x^3 + 16x^6 - 4$ is:

- a) 16 b) 6 c) 13 d) 8

2. " Twice a number increased by five " is translated to:

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

3. The **intercept** for the line $3x+6y=12$ is:

- a) $(12,0)$ b) $(4,0)$ c) $(0,2)$ d) $(3,6)$

4. The simplification of $(2a^3b^2)^3$ is:

- a) $8a^6b^5$ b) $6a^9b^6$ c) $8a^9b^6$ d) $2a^6b^5$

5. The equation of the line whose slope is and containing the point $(-2,-3)$ is:

- a) $y = -4x-5$ b) $y = -4x+5$ c) $y = 4x-5$ d) $y = 4x+5$

6. The solution set for the equation $|x| = -5$ is :

- a) $\{5\}$ b) $\{-5\}$ c) \varnothing d) $\{5,-5\}$

7. The first coordinate is always negative in quadrants:

a) I and II

b) II and III

c) I and IV

d) III and IV

8. The simplification of $27^{\frac{2}{3}}$ is:

a) 3

b) 12

c) 9

d) 27

9. The set of numbers for which the rational expression $\frac{(x-1)(x-3)}{(x-2)(x-5)}$ is not defined is:

a) {2,5}

b) {-2, -5}

c) {1,3}

d) {-1, -3}

10. The result of $\sqrt{-200}$ is :

a) $10\sqrt{2}$

b) $-10\sqrt{2}$

c) $-10\sqrt{2}i$

d) $10\sqrt{2}i$

11. The factorization of $a^2 - 81$ is:

a) $(a-9)(a+9)$

b) $a(a-81)$

c) $(a+81)(a-81)$

d) $(a-9)(a-9)$

12. The Greatest Common Factor (GCF) of $12x^6$ and $20x^2$ is:

a) $240x^8$

b) $2x$

c) $4x^2$

d) $60x^6$

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

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

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

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

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

14. The interval notation for the set $\{x \mid -3 < x \leq 6\}$ is:

a) $(-3, 6)$

b) $[-3, 6)$

c) $[-3, 6]$

d) $(-3, 6]$

15. The result of the division $\frac{8x^6 - 2x^3}{2x^2}$ is:

- a) $4x^3 - x^2$ b) $4x^4 - 2x$ c) $4x^4 - x$ d) $8x^4 - 2x$
-

16. The result of the multiplication $(2x+1)(3x+2)$ is:

- a) $6x^2 + 5x + 2$ b) $6x^2 + 7x + 2$ c) $6x^2 + 5x + 3$ d) $5x^2 + 5x + 3$
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17. If $f(x) = \sqrt{5-2x}$, then $f(x) = \sqrt{-2}$ is equal to:

- a) 1 b) -1 c) -3 d) 3
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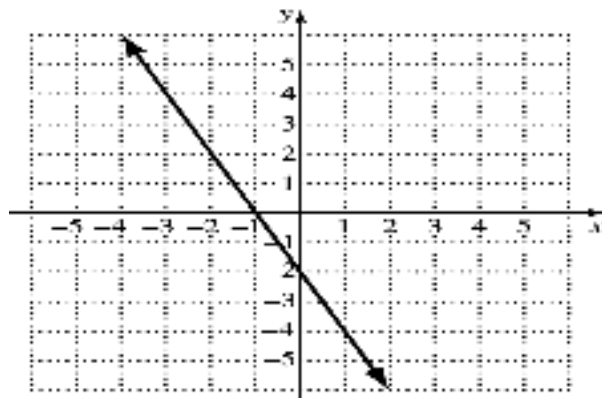
18. The set $\{\dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots\}$ is called the set of :

- a) Integers b) Whole numbers c) Natural numbers d) Rational numbers
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19. The simplification of $-\left|-\frac{2}{3}\right|$ is:

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

20. The equation illustrated by this graph is:



- a) $x + 2y = -2$ b) $-x + 2y = 2$ c) $2x + y = -2$ d) $x - 2y = 2$
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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: (4 points)

Perform and simplify the following:

1. $\frac{1}{2x-1} + \frac{3}{(2x-1)(x+1)} + \frac{1}{x+1}$

2. $\frac{2x-6}{(x+1)^2} \times \frac{x^2-1}{3-x}$

Question 3: (6 points)

Solve the following equations:

1. $|2x-3| = |3x+1|$

2. $x^2 - 2x + 3 = 0$

Question 4: (6 points)

Solve the following inequalities:

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

2. $5|3x - 1| - 7 \geq 8$

Question 5: (4 points)

Solve the system
$$\begin{cases} x - y - 2z = 1 \\ x - 5y + 2z = 5 \\ 2x - 3y - 4z = 2 \end{cases}$$