



UANL

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN



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 INTEGRATIVE LABORATORY STAGE 2
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 EDUCATIVE PROGRAM: BILINGUAL

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 DATE: SEPTEMBER 2022
 FIRST SEMESTER

STUDENT NAME: _____

GROUP: _____

R.N. _____

GRADE _____

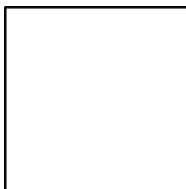
CO-EVALUATION CARRIED OUT BY: _____

I. INSTRUCTIONS: Carefully read each of the following statements and complete the correct answer.

- | | |
|--|-------------------------------------|
| () 1. Pair of binomials that are identical but with a different sign. | A) Relative prime |
| () 2. Process for finding prime factors of a given expression. | B) Prime polynomials |
| () 3. The denominator of any fraction should not take the value of: | C) Zero. |
| () 4. They are products between binomials with special characteristics. | D) Cancellation. |
| () 5. They are so called when two integers have no common factors different from one. | E) Conjugated binomials |
| () 6. It is multiplying a binomial by itself three times. | F) Perfect square trinomial |
| () 7. A procedure performed by factoring the numerator and denominator of a fraction and canceling the common factor: | G) Factorization. |
| () 8. They are those polynomials whose factors are itself and one. | H) The cube of a binomial |
| () 9. It is the result of raising a binomial to the square. | I) Second-degree general trinomial. |
| () 10. This name is given to the result of multiplying two binomials with similar terms. | J) Notable products. |

II. INSTRUCTIONS: Use the NOTABLE PRODUCTS to determine the area of the following figures.

11.



$3a + 5$

- a) $6a + 10$ b) $9a^2 + 25$ c) $9a^2 + 30a + 25$ d) $3a^2 + 30a + 25$

12.



$$x - 3$$

$$x + 7$$

- a) $x^2 + 4x + 21$ b) $x^2 - 4x - 21$ c) $x^2 + 10x - 21$ d) $x^2 + 4x - 21$

III. INSTRUCTIONS: Solve the following NOTABLE PRODUCTS

13. $(ax + y)^2$

- a) $a^2x^2 + 2axy + y^2$ b) $a^2x^2 + 9axy + y^2$ c) $a^2x^2 + y^2$ d) $a^2x^2 + axy + y^2$

14. $(3ab - c)(3ab + c)$

- a) $6a^2b^2 - c$ b) $3a^2b^2 - c^2$ c) $9ab^2 - c^2$ d) $9a^2b^2 - c^2$

15. $(5x + 7)(5x - 8)$

- a) $10x^2 + 5x + 56$ b) $25x^2 - 5x - 56$ c) $10x^2 - 5x - 56$ d) $25x^2 + 5x - 56$

16. $(3x + 4)(x - 8)$

- a) $3x^2 + 16x - 32$ b) $3x^2 - 4x - 32$ c) $3x^2 + 4x - 32$ d) $3x^2 - 20x - 32$

17. $(y - 4w)^3$

- a) $y^3 - 4w^3$ b) $y^3 - 3y^2w + 3yw^2 - w^3$ c) $y^3 - 64w^3$ d) $y^3 - 12y^2w + 48yw^2 - 64w^3$

IV. - INSTRUCTIONS: Use factorization to find the sides of the following figures. **WITHOUT PROCEDURE YOUR ANSWER WILL BE INVALIDATED**

18.

- a) $(x - 6)(x + 2)$ b) $(x - 2)(x + 6)$ c) $(x - 3)(x - 4)$ d) $(x - 4)(x + 3)$

19.

$$\text{Area} = 1 - 64x^2$$

- a) $(1 - 8x)^2$ b) $(1 - 8x)(1 + 8x)$ c) $(1 + 8x)(1 + 8x)$ d) $(1 + 32x)(1 - 32x)$

20.

$$\text{Area} = a^6 - b^3$$

- a) $(a^2 - b)(a^4 + a^2b + b^2)$ b) $(a - b)(a^2 + ab + b^2)$
 c) $(a^2 - b)(a^2 + ab + b^2)$ d) $(a^2 - b)(a^4 - a^2b + b^2)$

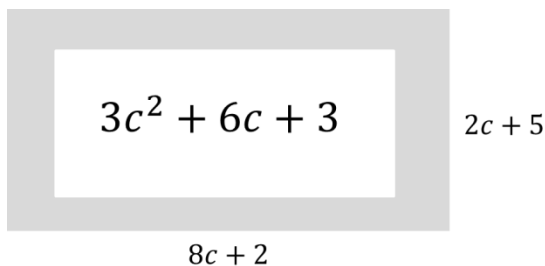
21.

$$\text{Area} = x^2 - 16x + 64$$

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

V.- INSTRUCTIONS: Analyze and solve the following problems, using NOTABLE PRODUCTS

22. Calculate the area of the shaded region of the following figure, if the sides of the larger rectangle are $2c + 5$ and $8c + 2$ the area of the minor rectangle is $3c^2 + 6c + 3$.



- a) $16c^2 + 44c + 10$ b) $19c^2 + 50c + 13$ c) $13c^2 + 38c + 7$ d) $13c^2 + 50c + 13$

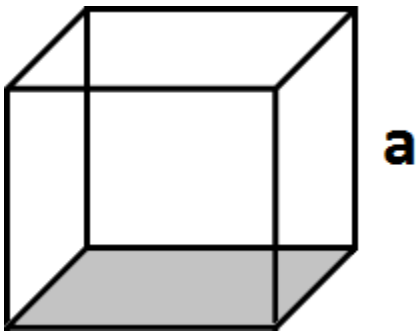
23. Calculate the volume of a cubic body if the length is 5 meters greater than the height and the width is 2 meters less than the height.

- a) $x^3 + 7x^2 - 10x$ b) $x^3 + 3x^2 + 10x$ c) $x^3 + 3x^2 - 10x$ d) $x^3 - 7x^2 - 10x$

24. A pool with a rectangular shape has the following dimensions the length $(x + 3)$, the height $(x + 2)$ and the width $(x + 1)$, determine the volume to fill the pool with water.

- a) $x^3 + 6x^2 + 11x + 6$ b) $x^3 + 11x^2 + 6x + 6$
c) $x^3 + 5x^2 + 11x + 6$ d) $x^3 + 5x^2 + x + 6$

25. Determine the sides of the base of a cube if its height is "a" and the volume is $a^3 + 8a^2 + 16a$



- a) $a^2 + 8a + 16$ b) $(a + 4)(a - 4)$ c) $8a + 16$ d) $(a + 4)^2$

VI.- INSTRUCTIONS: Factor completely the following problems.

26. $30c^8 - 12c^5$

- a) $6c^5(5c^3 - 2)$ b) $6c^3(5c^8 - 2)$ c) $5c^5(6c^3 - 2)$ d) $6c^5(5c^3 - 3)$

27. $14b^4 - 21b^9 + 5b^5$

- a) $b^5(14 - 21b^4 + 5b)$ b) $7b^4(2 - 3b^5 + 5b)$ c) $b^5(14 + 21b^4 + 5b)$ d) $b^4(14 - 21b^5 + 5b)$

28. $81x^2y^2 - 49$

- a) $(-7 - 9xy)(7 - 9y)$ b) $(-7 - 9xy)(7 - 9xy)$ c) $(-7 - 9x)(7 - 9xy)$ d) $(-7 - 9xy)(7 + 9xy)$

29. $a^2 - 49x^2$

- a) $(a + 7x)(a + 7x)$ b) $(a - 7x)(a + 7)$ c) $(a - 7x)(a + 7x)$ d) $(a - 7x)(a - 7x)$

30. $a^2 - 10a + 25$

- a) $(a - 5)^2$ b) $(a + 5)^2$ c) $(a + 5)(a - 5)$ d) $(a - 5)^3$

31. $81y^2 - 72xy + 16x^2$

- a) $(9y - 4x)^4$ b) $(9y - 4x)^2$ c) $(9y + 4x)^2$ d) $(9y - 4x)$

32. $x^2 + 10x + 16$

- a) $(x + 16)(x + 1)$ b) $(x - 8)(x - 2)$ c) $(x + 8)(x + 2)$ d) $(x + 8)(x - 2)$

33. $9x^2 + 15x - 6$

- a) $(3x - 1)(3x - 6)$ b) $(3x + 1)(3x + 6)$ c) $(3x - 2)(3x + 3)$ d) $(3x - 1)(3x + 6)$

VII.- INSTRUCTIONS: Simplify completely the following algebraic expressions.
WITHOUT PROCEDURE YOUR ANSWER WILL BE INVALIDATED

34. $\frac{x^2 + 2x - 3}{x^2 + 7x + 12}$

a) $\frac{x+1}{x+4}$

b) $\frac{x-1}{x-4}$

c) $\frac{x+1}{x+3}$

d) $\frac{x-1}{x+4}$

35. $\frac{3x^3 + 5x^2}{12x^2 + 20x}$

a) $\frac{3x^2 + 5}{3x + 5}$

b) $\frac{x}{4}$

c) $4(3x+5)$

d) $\frac{x^2}{4x}$

36. $\frac{y^3 - 125}{y^2 - 25}$

a) $\frac{y^2 - 5y + 25}{y - 5}$

b) $\frac{y^2 + 5y + 25}{y + 5}$

c) $\frac{y^2 - 5y - 25}{y - 5}$

d) $\frac{y^2 - 5y - 25}{y + 5}$

VII.- INSTRUCTIONS: Simplify completely the following algebraic fractions and underline the answer.
WITHOUT PROCEDURE YOUR ANSWER WILL BE INVALIDATED

37. $\frac{2x^2 - 5x - 3}{2x^2 - 3x - 2}$

38. $\frac{x^2 - 5x + 6}{x^2 - 2x}$

$$39. \frac{-2x^2+x}{-2x^2+9x-4}$$

$$40. \frac{-9+x^2}{x^2+2x-15}$$