EVIDENCES PORTFOLIO
EXTRAORDINARY
2nd OPPORTUNITY

DEVELOPMENT OF ALGEBRAIC THINKING

Student's name:_____

_____

Roll number: _____   Date: ____/ ____/ 2022
Teacher: _____   Group: _____

The current portfolio is part of the 50% of the evaluation. This part of the grade will be obtained only if meet the requirements:

1. Follow the **instructions provided by the teacher** for the filled of this portfolio.
2. Put your **complete identification data.**
3. **Upload and send** this portfolio **in PDF format**, the **day** and **time** in **which the teacher assigns** on the **Assignment section** of the current **team** corresponding to the **subject in MS Teams**, where the teacher will review.
4. **PLEASE ADD YOUR FULL NAME ON EACH SHEET.**

General guidelines

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Specific academic guidelines

1. Must be answered in pencil.
2. With clear, orderly and complete procedure.
3. The answer (s) must be well indicated.
4. The document must contain images clear and in order. In PDF format.
5. Must be delivered in time and format.
6. The use of photomath is forbidden (will be rejected).
7. Insert a watermark with your names, using highlighter.

I.-Write in symbolical language each one of the following expressions:

a) The third part of a number **w**	
b) 8 times the price **x**	
c) The quotient of two numbers is 25	

II.- Performs the sum of the given polynomials.

$(4a – 3b + 6c -11)$; $(2a +8b – 11c)$; $(-a +2b + c +14)$
$(2wx – 4w^2x – 8wx^2)$; $(3wx – 9w^2x + 2wx^2)$; $(-5wx + 7w^2x + 7wx^2)$

III.- Do the following polynomial substractions:

Substract the second polynomial from the first one $(6x – 6y + 6z)$; $(-3x + 10y – z)$
Substract the sum from $(12a + 3b – 4c)$ y $(6a- 8b + 5c)$ of the polynomial $(4a- 10b – 5c)$

IV.- Perform the indicated operations in each problem.

$11x^4y^6c^2 (28xy^5 + 12x^2y^{-10} +y^9c^{10})=$

$(4x^2 − 1)(6x^2 − 9)=$

$(4x − 5y)(16x^2 + 20xy + 25y^2)=$

$\dfrac{36a^6b^{10}}{9a^2b^5} =$

$\dfrac{-30x^2y^4 − 45x^2y^3z}{-15x^2y^3} =$

$(2x^4 − 11x^3 + 3x^5 + 10x +4)÷(x + x^2 − 2)=$

V.- Simplify by removing the symbols from the grouping.

-(7 + 3ax) - {(2 − ax) − (4 − x + ax) − (4x − 4ax)} =

{ 2(3 + x) - [4 − (x + 1)] } - [(2 + x) − (x − 2)] =

STAGE 2 NOTABLE PRODUCTS, FACTORIZATION OF POLYNOMIALS AND ALGEBRAIC FRACTIONS

I.-. Find the Greatest Common Factor (GCF) from the terms of each expression.

$8x^5y^2 + 12xy^3 − 2xy − 6xy^2$

$10x^2y^4 + 15x^3y + 30x^4y^5$

$56d^2 − 7d^9 − 21d^4$

II.- Get the product from the conjugated binomials.

$(8 − 4xy)(8 + 4xy) =$

$(9a − x)(9a + x) =$

III.- Factorize each one of the following difference of squares.

$4x^2 - 16 =$
$16p^2 - 100 =$
$36a^2 - 16b^2 =$

IV.- For the following problems multiply the following binomials.

$(w - 8)(w - 4) =$
$(2x + 5)(x + 4) =$

V.- Factorize the following square trinomials.

$x^2 - 8x + 12 =$
$r^2 - 4r - 12 =$
$u^2 + u - 72 =$
$3x^2 + 11x + 10 =$
$2x^2 + 11x - 90 =$

VI.- Execute using the binomial square rule.

$(a + 10)^2 =$
$(2b - 4)^2 =$

VII.- Writ the following trinomials as a square binomial.

$x^2 + 6x + 9 =$
$x^2 - 8x + 16 =$
$x^2 - 30x + 225 =$

VIII.- Factorize completely the following sums or cubed differences.

$(a^3 - 27) =$
$(x^3 + 1) =$

IX.- Simplify the following expressions.

$\dfrac{x^2 + 2x - 3}{x^2 + 7x + 12} =$
$\dfrac{x^2 - 2x - 35}{x^2 + 11x + 30} =$
$\dfrac{2x^2 - 5x - 3}{2x^2 - 3x - 2} =$

STAGE 3 LINEAR EQUATIONS IN ONE AND TWO VARIABLES AND FRACTIONAL EQUATIONS

Ì.- Evaluate the expressions substituying the values given from the variable.

10 + 3(x-2)	Si x=6	Si x=4	
3(w − 9) + (w + 5)	Si w=10	Si w=3	Si w=5

II.- Solve each one of the following equations showing the steps of each transformation.

$5x - 2(x + 3) = 90$

$5n + 3(n + 4) = 28$

$9x - 6 = 8x$

$10x + 24 = 8 + 8(x + 2) + 2x$

$$P = \frac{50\,t}{v}, t = 140 \; y \; v = 25$$

$$A = \frac{1}{2}(b_1 + b_2)h, \qquad b_1 = 12, b_2 = 8, h = 30$$

IV.- Solve the following application problem.

On a determined day the temperature on Monterrey is 39° C and decrease with a speed of 1.3° C per hour. The same day, the temperature in Saltillo of 24° C and increase with a speed of 1.2° C per hour.
a) Write an expression that represents the temperature in each of the cities after **x** hours.
b) Write an equation expressing that both places have the same temperature.

V.- Solve the following problems.

The ratio of two integers is 17:13. Their sum is 390. Find the two integers.

Mr. Gonzalez regularly donates $300.00 per month to charity and $800.00 per month to his grandchildren. a) What is the ratio of these two figures in his minimum? b) Mr. Gonzalez's will specifies that his estate will be divided in the same proportion. If his estate is $104,500.00, how much will go to charity and how much to his grandchildren?

The sides of a triangle are in the ratio 7:10:11, its perimeter is 112 meters. What is the length of each side?

Clara is 31 years old, her sister Elena is 47. When will their ages be in ratio 4:5?

VI.- Answer the following systems of equations by the **Substitution Method.**

y=2x
3x + y =10

 x + 2y =2
5x − 3y =-29

VIII.- Solve the following systems of equations by the Method of Addition and Substraction.

x – 4y =23
3x + y = 13

3x + 5y = 17
2x + 3y = 11

IX.- Solve the following application problems where the model is a system of linear equations.

The tickets for a show were sold at $400 numbered and $275 general admission and were sold out. Calculate how many tickets were sold from each section if the theater capacity is 1600 seats and the amount of revenue was $552,500.

In an automatic teller machine 967 bills were deposited. If the total amount of money represented by these bills is $37,970, how many bills of each denomination were deposited?

STAGE 4 SQUARE EQUATIONS

I.- Solve the following equations with absolute value.

$\lvert x - 5 \rvert = 3$	$\lvert 3x - 25 \rvert = 4$
$\lvert 2x - 7 \rvert = 15$	$\lvert 2x + 3 \rvert = 9$

II.- Solve applying $\sqrt{n^2} = \lvert n \rvert$

$(x - 2)^2 = 49$	$(x + 9)^2 = 121$
$(4x - 1)^2 = 64$	$(5x + 2)^2 = 100$

III.- Solve the following quadratic equations by the General Formula method.

$3x^2 + 7x + 2 = 0$	$6x^2 + 7x - 3 = 0$
$18x^2 - 23x - 6 = 0$	$3x^2 + 10x - 8 = 0$

IV.- Solve the following quadratic equations by the Factorization method.

$x^2 + 7x + 6 = 0$	$x^2 + 6x + 5 = 0$	$x^2 + x - 20 = 0$
$x^2 - 3x - 4 = 0$	$x^2 - 5x - 24 = 0$	$x^2 + 5x - 14 = 0$

$x^2 + 3x - 10 = 0$	$x^2 + 4x - 45 = 0$	$x^2 - 9x + 18 = 0$

V.- Solve the following application problems of quadratic equations.

Jose is 4 years older than Luis. The product of the numbers expressing their ages in years is 525.   What is the age of each of them?
In a rectangle the width is 5m less than its length; if the area is 84m², determine the length and width of the rectangle.

Checklist			
Subject: Development of Algebraic Thinking			
Stages: 1 to 4.			
Evidence: 2nd opportunity Portfolio.			
Type of evaluation: Heteroevaluation			
Points: 50			
Criteria	Yes	No	Observation
1.- Develops the appropriate algorithm in operations with polynomials.			
2.- Develops remarkable products and applies the different factorization methods.			
3.- Effectively simplifies algebraic fractions			
4.- Identify and apply the different methods to solve an equation.			
5.- Identify and apply the different methods to solve a system of equations.			
6.- Establishes a mathematical model to solve problems in real contexts.			
7.- Correctly determine the solution set of an equation with absolute value.			
8.- Identify the solution set of a quadratic equation.			
9.- Correctly solves a quadratic equation using the quadratic formula (general)			
10.- Correctly solve a quadratic equation by factoring.			
11.- Interpret results in everyday life problem situations in the context of this using quadratic equations.			