

INTEGRATIVE LABORATORY: 2022 – 2023	SEMESTER: AUGUST-DECEMBER 2022
INTEGRATIVE LABORATORY STAGE 3 DEVELOPMENT OF THE ALGEBRAIC THINKING	DATE: OCTOBER 2022
MADE BY DEVELOPMENT OF THE ALGEBRAIC THINKING ACADEMY:	FIRST SEMESTER
ACADEMY CHIEF: DRA. ELOISA M. ESCAMILLA GARZA	
EDUCATIVE PROGRAM: BILINGUAL	

NAME OF THE STUDENT: _____			
GROUP: _____	R.N. _____	GRADE _____	
COEVALUATION MADE BY: _____			

I. INSTRUCTIONS: Read each of the following statements carefully and complete the correct answer.

- | | |
|---|------------------------|
| () 1. Statement where two quantities or expressions are equal. | A) System of equations |
| () 2. Number that satisfies the equation, that is, that when you substituted in the place of the variable makes the equation true. | B) Solution Set |
| () 3. Set of all ordered pairs in a linear equation in two variables (in parentheses). | C) Identity |
| () 4. Set of equations that have the same variables. | D) Abscissa |
| () 5. The set of all values that satisfy an equation is called: | E) Literal Equation |
| () 6. It is the one that can be written in the form $ax + b = 0$, with $a \neq 0$. | F) Conditional |
| () 7. Directed distance from a given point in the Cartesian plane to the "x" axis. | G) Equation |
| () 8. It is the equation where there are values for which it is true and others for which it is false. | H) Ordered |
| () 9. Equation that is true for all cases or values of the variable. | I) No solution |
| () 10. Equations in which more than one letter appears, some represent variables and others constants. | J) Solution |
| | K) Linear equation |

Linear equation in one variable.

II. INSTRUCTIONS: From the following linear equations, select the correct answer, performing the corresponding operations. Without procedure, your answer is invalid

1. Given the following expression $5(x + 3) + 6(9 - x)$, evaluate when $x = 4$.

- a) 65 b) 60 c) 20 d) 70 e) 81

2. Evaluate the following expression: $x = 7p - 9r + 20$, where $p = 5, r = 20$

- a) 125 b) 180 c) -125 d) -145 e) -180

III. INSTRUCTIONS: Of the following linear equations, clear or solve, according to the indication, indicate the type of solution in each one. Without procedure, your answer is invalid.

Clear (isolate) the variable “x” for the following problems

3. Solve the following equation $10(x + 30) = 100$

- a) 20 b) 200 c) 100 d) -200 e) -20

4. What is the result from the following equation $2x - 8 + 7x = 19$?

- a) $x = 9$ b) $x = -3$ c) $x = 3$ d) $x = -9$ e) $x = 7$

5. What is the result from the following equation $50x + 75 = -150$

- a) $x = 5.7$ b) $x = 2$ c) $x = -2.5$ d) $x = -4.5$ e) $x = 10$

6. What is the result from the following equation $6x + 11 = 30$?

- a) $x = 3.17$ b) $x = 1.55$ c) $x = -4.23$ d) $x = -1.22$ e) $x = -3.166$

7. $2x - 4q = 20$

8. $10 + 2x = 30wx - 13$

9. Isolate the variable "g"

$$x = x_0 + \frac{1}{2}gt^2 + V_0t$$

10. clear the variable "z"

$$\frac{1}{z} - \frac{1}{w} = \frac{1}{y}$$

Situations that are solved by linear equations with one variable.

IV. DIRECTIONS: For the following real-life problems, write an equation and solve it. Without procedure, your answer is invalid.

11. The sides of a triangle have lengths in the ratio 4:6:8, the perimeter of the triangle is 234 cm. Find the length of the sides.

12. The ratio of two whole numbers is 3:7 and the smaller number is 84. What is the larger number?

13. In a school, the number of first-year students compared to second-year students is 9:11. If there are 216 first-year students, how many are second-year students?

14. On a certain day the temperature in the city of Monterrey is 39°C and is decreasing at a rate of 1.3°C per hour. That same day, the temperature in Saltillo is 24°C and is increasing at a rate of 1.2°C per hour. If "x" is the number of hours that have passed, how long does it take for both cities to reach the same temperature?

15. Luis has \$500 and spends \$25 per day, his brother Paco has \$100 and saves (or earns) \$15 per day. If you consider "x" the number of days that pass, in how many days will they have the same amount of money?

16. In the classroom 3A there are twice the number of students as in the 3C. Also, it is known that if 8 students are transferred from 3A to 3C, both classrooms will have the same number of students. How many students are in each of these classrooms?

Systems of linear equations in two variables.

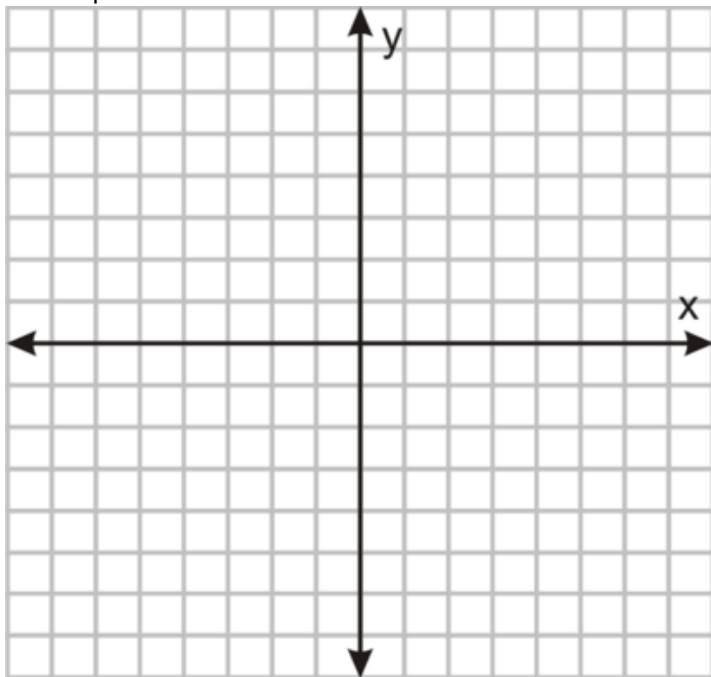
V. INSTRUCTIONS: For the following systems of equations (A and B), solve each one by the three methods. Without procedure, your answer is invalid.

A) $2x + y = 2$
 $-4x + 2y = 8$

17. Substitution Method

18. Method Elimination (addition and subtraction)

19. Graphic Method

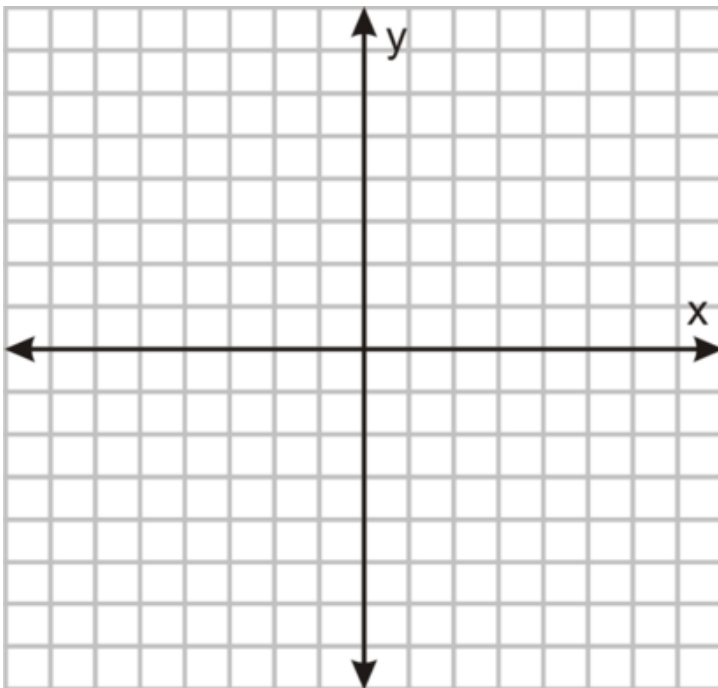


B) $-2x + 3y = 14$
 $3x - y = -14$

20. Substitution Method

21. Method Elimination (addition and subtraction)

22. Graphic Method



Situations that are solved by systems of linear equations with two variables.

VI. INSTRUCTIONS: Solve the following mathematical models using one of the methods of systems of linear equations. Without procedure, your answer is invalid.

23. The other afternoon I saw 39 vehicles in a parking lot, including cars and motorcycles, to which I counted a total of 126 wheels. How many vehicles of each class were in the parking lot?

24. In a multiple choice test, 4 points are awarded for each correct answer and 1 point is deducted for a wrong answer. A student answers 17 questions and gets 43 points. How many questions did he answer correctly?

25. Eugenio works in a movie theater and yesterday he sold 15,240 tickets for the IMAX and 3D theaters, but he did not have systems to register them. Now the manager asks for a report on how many of each type of ticket he sold since he reported \$157,980. If the functions for the IMAX room costs \$12 and for the 3D room \$9. How many tickets did he sell for each room?