



# ALGEBRA

**2th**

SECONDARY

**Sesión 1**



**RETROALIMENTACION**  
**TOMO 8**

 **SACO OLIVEROS**



# **PROBLEMA 1** Resuelve $(x + 5)(x - 1) \leq (x + 2)(x - 4)$

*Resolución:*

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

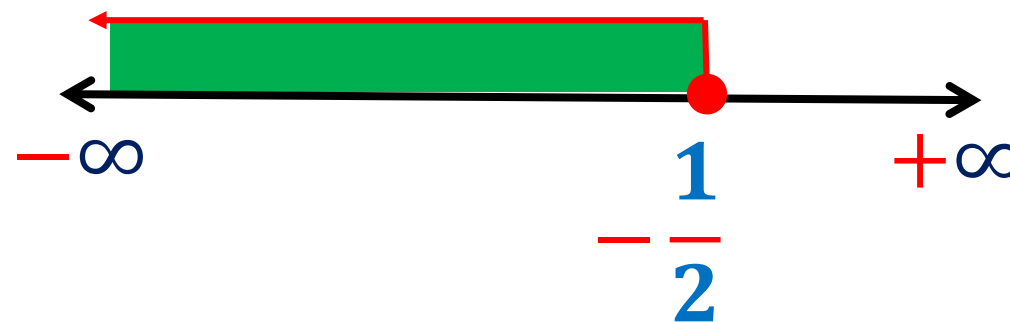
$$\cancel{x^2} + 4x - 5 \leq \cancel{x^2} - 2x - 8$$

$$4x + 2x \leq -8 + 5$$

$$6x \leq -3$$

$$x \leq -\frac{3}{6}$$

$$x \leq -\frac{1}{2}$$



$$C.S = \left( -\infty; -\frac{1}{2} \right]$$



## **PROBLEMA 2** Halle el conjunto solución

$$4x - 3 < 2x + 15 \leq 7x + 55$$

*Resolución:*

$$4x - 3 < 2x + 15 \leq 7x + 55$$

$$I) \quad 4x - 3 < 2x + 15$$

$$2x < 18$$

$$x < 9$$

$$II) \quad 2x + 15 \leq 7x + 55$$

$$-40 \leq 5x$$

$$-8 \leq x$$

$$\therefore -8 \leq x < 9$$

$$C.S = [-8; 9)$$



# PROBLEMA 3

Resuelva la inecuación

$$\frac{5x + 2}{9} - \frac{2x - 1}{5} > \frac{82}{45}$$

Dé como respuesta el menor valor entero

Resolución:

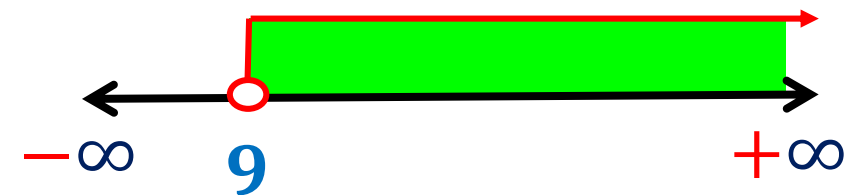
$$45 \left( \frac{5x + 2}{9} \right) - 45 \left( \frac{2x - 1}{5} \right) > 45 \left( \frac{82}{45} \right)$$

$$5(5x + 2) - 9(2x - 1) > 82$$

$$25x + 10 - 18x + 9 > 82$$

$$7x + 19 > 82$$

$$7x > 63 \Rightarrow x > 9$$



$\therefore$  Menor valor entero = 10

**PROBLEMA 4** Determine la suma de valores de “x”.  
Sabiendo que representa en soles la deuda del profesor Gustavo al banco Scotiabank .¿Cuál es la deuda?  $x^2 \leq -9x$

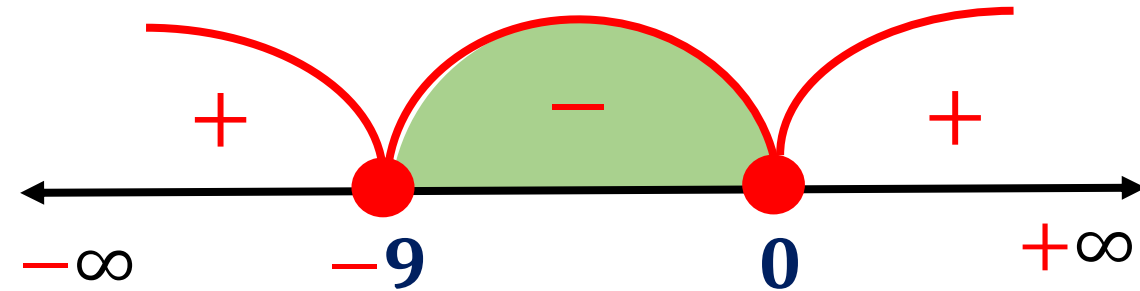
### Resolución

$$x^2 \leq -9x$$

$$x^2 + 9x \leq 0$$

$$x(x + 9) \leq 0$$

$$\text{P.C} \begin{cases} x = 0 \\ x + 9 = 0 \end{cases} \Rightarrow x = -9$$



$$x \in [-9; 0]$$

$$\rightarrow -9; -8; \dots; -1; 0$$

**$\therefore$  El profesor Gustavo debe S/. 45**



# **PROBLEMA 5** Halle la variación de “x” $2x^2 - 7x - 15 \leq 0$

## Resolución

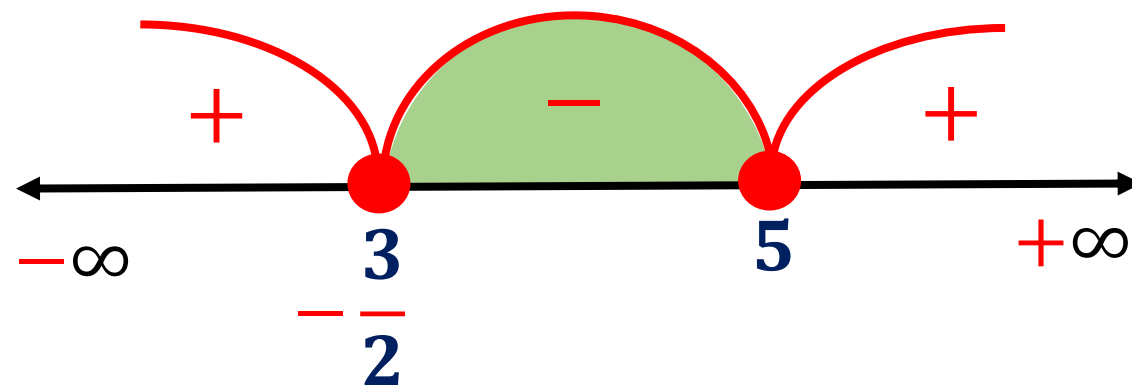
$$2x^2 - 7x - 15 \leq 0$$

$$\begin{array}{ccc} 2x & & 3 \\ & \nearrow & \searrow \\ & x & -5 \end{array}$$

$$(2x + 3)(x - 5) \leq 0$$

P.C

$$\left\{ \begin{array}{l} 2x + 3 = 0 \Rightarrow x = -\frac{3}{2} \\ x - 5 = 0 \Rightarrow x = 5 \end{array} \right.$$



$$C.S = \left[ -\frac{3}{2}; 5 \right]$$



# PROBLEMA 6 Determine el conjunto solución de:

$$6x(x - 3) - 2x > -14$$

## Resolución

$$6x(x - 3) - 2x > -14$$

$$6x^2 - 18x - 2x > -14$$

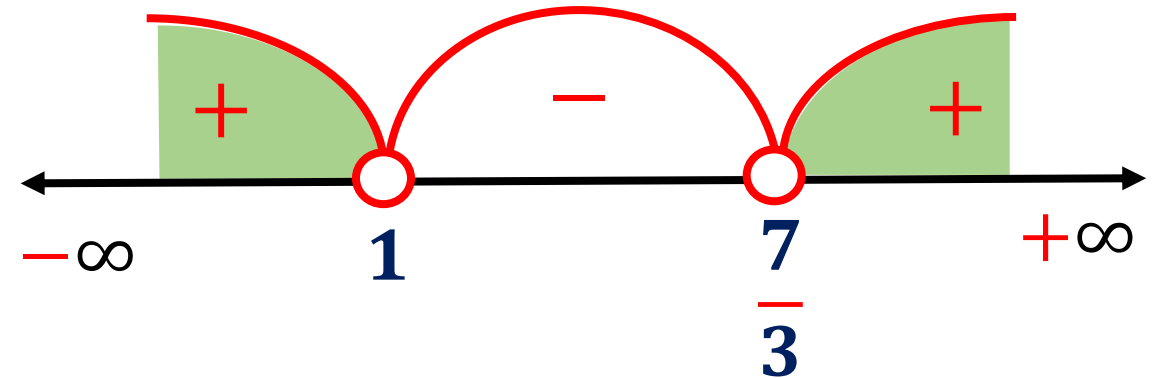
$$6x^2 - 20x + 14 > 0$$

$$3x^2 - 10x + 7 > 0$$

$$\begin{array}{rcl} 3x & & -7 \\ x & & -1 \end{array}$$

$$(3x - 7)(x - 1) > 0$$

$$\text{P.C} \begin{cases} 3x - 7 = 0 \rightarrow x = \frac{7}{3} \\ x - 1 = 0 \rightarrow x = 1 \end{cases}$$




$$\therefore C.S = \langle -\infty; 1 \rangle \cup \left\langle \frac{7}{3}; +\infty \right\rangle$$



**PROBLEMA 7** Si  $F$  es una función  $F = \{(2; 3b - 1), (b; 5), (9; b), (2; 20)\}$   
Calcule la suma de elementos del dominio y rango

Resolución

$$F = \{(2; 3b - 1), (b; 5), (9; b), (2; 20)\}$$


$$3b - 1 = 20$$

$$3b = 21$$

$$b = 7$$

$$F = \{(2; 20), (7; 5), (9; 7)\}$$

$$\text{Dom}(F) = \{2; 7; 9\} \Rightarrow \text{Suma} = 18$$

$$\text{Ran}(F) = \{20; 5; 7\} \Rightarrow \text{Suma} = 32$$

$$\therefore \text{Dom}(F) + \text{Ran}(F) = 50$$





**PROBLEMA 8** Si los pares ordenados  $(7m + 5; 12)$  y  $(19; 3n)$  son iguales, calcule  $n^m$

*Resolución*

$$( \underbrace{7m + 5}_{\text{blue}} ; \underbrace{12}_{\text{pink}} ) = ( \underbrace{19}_{\text{blue}} ; \underbrace{3n}_{\text{pink}} )$$

$$7m + 5 = 19$$

$$3n = 12$$

$$7m = 14$$

$$n = 4$$

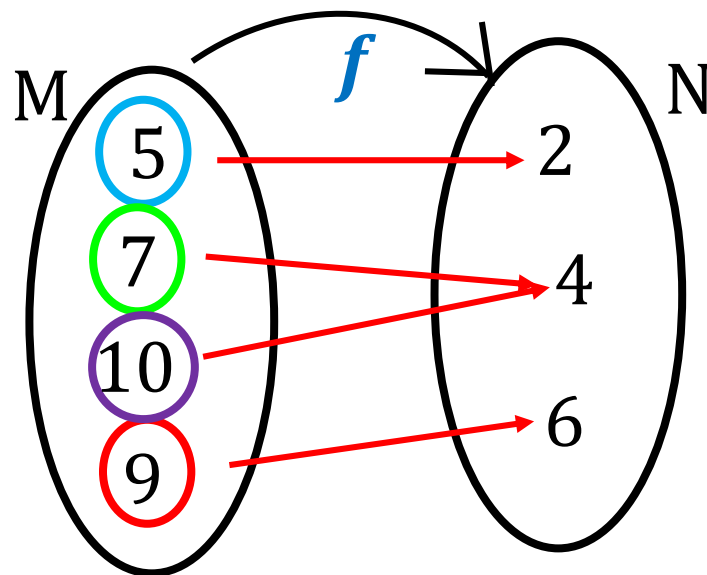
$$m = 2$$

$$\therefore n^m = 4^2 = 16$$

# Dado el diagrama



## PROBLEMA 9



### Resolución

**Efectúe:**  $Q = \frac{f(5)f(7)-f(9)}{5} + f(10)$

$$Q = \frac{2^4 - 6}{5} + 4$$

$$Q = \frac{10}{5} + 4 = 6$$

$$\therefore Q = 6$$



## **PROBLEMA 10** Dadas las funciones

$$M = \{(7; 5), (2; 3), (9; 4)\}$$

$$N = \{(4; 8), (3; 0), (-1; 2)\}$$

**Calcule :**

$$[N(M(9))]^{N(-1)} + M(2)^{N(3)}$$

**Resolución**

$$[N(\underline{M(9)})]^{\underline{N(-1)}} + \underline{M(2)}^{\underline{N(3)}}$$

$$[\underline{N(4)}]^2 + 3^0$$

$$8^2 + 1$$

$$65$$

$$\therefore [N(M(9))]^{N(-1)} + M(2)^{N(3)} = 65$$