



# ALGEBRA

2th  
SECONDARY

Práctica exploratoria

SESIÓN II



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# ALGEBRA

## Ecuaciones

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1 Determine el valor de  $y$  en

$$\frac{2y - 1}{3} = \frac{y + 1}{4}$$

**Resolución:**

$$\frac{2y - 1}{3} = \frac{y + 1}{4}$$

$$4(2y - 1) = 3(y + 1)$$

$$8y - 4 = 3y + 3$$

$$5y = 7$$

$$y = 7/5$$

$$\therefore y = 7/5$$



2 Calcule el valor de m en:

$$\underbrace{(m + 1)^2}_{\text{}} = m^2 + 9$$

**Resolución:**

$$(m)^2 + 2(m)(1) + (1)^2 = m^2 + 9$$

$$\cancel{m}^2 + 2m + 1 = \cancel{m}^2 + 9$$

$$2m + 1 = 9$$

$$2m = 8$$

$$m = 4$$

### RECUERDA

*Trinomio cuadrado Perfecto*

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$\therefore m = 4$$



3 Efectúa y determina el valor de  $x$  en:

$$(x + 3)^2 = (x - 2)^2 + 15$$

**Resolución:**

$$(x + 3)^2 = (x - 2)^2 + 15$$

$$\cancel{x^2} + 6x + 9 = \cancel{x^2} - 4x + 4 + 15$$

$$6x + 4x = 19 - 9$$

$$10x = 10$$

$$x = 1$$

$$\therefore x = 1$$

### RECUERDA

*Trinomio cuadrado Perfecto*

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$





4 Encuentra el valor de  $x$ :

$$\frac{x-1}{3} + \frac{x-2}{4} = \frac{x-3}{6}$$

**Resolución:**

$$M.C.M.(3; 4; 6) = 12$$

$$12 \left( \frac{x-1}{3} + \frac{x-2}{4} \right) = \left( \frac{x-3}{6} \right) 12$$

$$4(x-1) + 3(x-2) = 2(x-3)$$

$$4x - 4 + 3x - 6 = 2x - 6$$

$$7x - 10 = 2x - 6$$

$$5x = 4$$

$$x = 4/5$$

$$\therefore x = 4/5$$



5 Calcula:

$$A = \frac{2^{10} \cdot 2^{12} \cdot 2^{15}}{2^9 \cdot 2^7 \cdot 2^{20}}$$

Resolución:

$$A = \frac{2^{10+12+15}}{2^{9+7+20}}$$

$$A = \frac{2^{37}}{2^{36}} = 2^{37-36}$$

$$A = 2^1 = 2$$

$$\therefore A = 2$$

### RECUERDA

$$a^m \cdot a^n = a^{m+n}; a \neq 0$$

$$\frac{a^m}{a^n} = a^{m-n}; a \neq 0$$





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Calcula:

$$A = \frac{15^5 \cdot 35^4}{21^4 \cdot 25^4}$$

Resolución:

$$A = \frac{(5 \cdot 3)^5 \cdot (7 \cdot 5)^4}{(7 \cdot 3)^4 \cdot (5^2)^4}$$

$$A = \frac{5^5 \cdot 3^5 \cdot 7^4 \cdot 5^4}{7^4 \cdot 3^4 \cdot 5^8}$$

$$A = \frac{5^9 \cdot 3^5 \cdot \cancel{7^4}}{\cancel{7^4} \cdot 3^4 \cdot 5^8} = 5^1 \cdot 3^1 = 15$$

$$\therefore A = 15$$

## RECUERDA

$$(a \cdot b)^n = a^n \cdot b^n$$

$$(a^m)^n = a^{m \cdot n}$$

$$a^m \cdot a^n = a^{m+n}$$

$$\frac{a^m}{a^n} = a^{m-n}$$







**7** Si:  $a^a = 7$   
 Calcule:  $E = \frac{(a^{13})^a}{(a^3)^{4a}}$

**Resolución:**

$$E = \frac{(a^a)^{13}}{a^{12a}}$$

$$E = \frac{(a^a)^{13}}{(a^a)^{12}}$$

$$E = \frac{7^{13}}{7^{12}} = 7^{13-12} = 7^1 = 7$$

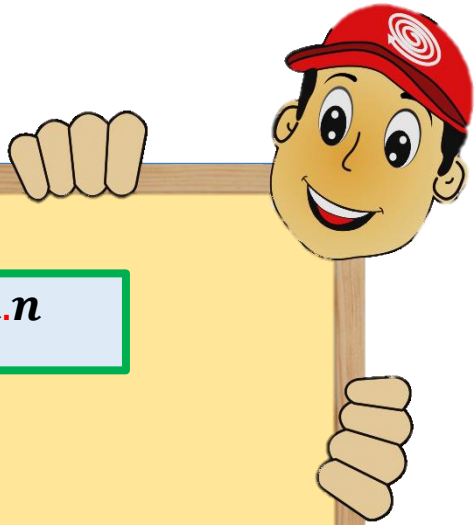
$$\therefore E = 7$$

**RECUERDA**

$$(a^m)^n = a^{m \cdot n}$$

**Obs.:**

$$(a^m)^n = (a^n)^m$$



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Efectúa:

$$R = \left(\frac{1}{6}\right)^0 + \left(\frac{1}{5}\right)^{-1} + \left(\frac{1}{4}\right)^{-2} + \left(\frac{1}{3}\right)^{-3}$$

**Resolución:**

$$R = 1 + 5^1 + 4^2 + 3^3$$

$$R = 1 + 5 + 16 + 27$$

$$R = 49$$

$$\therefore R = 49$$

**RECUERDA**

$$a^0 = 1 ; a \neq 0$$

$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n ; b \neq 0$$

