

# RADICACION

## Introducción

$$\sqrt[2]{A \pm 2\sqrt{B}}$$

$$a > b$$

$$a \cdot b = B$$

$$a + b = A$$

$$\sqrt{(\sqrt{a} \pm \sqrt{b})^2}$$

Mayor Mayor

$$\sqrt{a} \pm \sqrt{b}$$

Ej.

$$\sqrt{6 \pm 2\sqrt{5}}$$

5.1

$$\sqrt{5} + \sqrt{1}$$

$$\sqrt{5+1} \quad \times$$

$$\sqrt{7 \pm 2\sqrt{10}}$$

5.2

$$\sqrt{5} - \sqrt{2} \quad \times$$

$$\sqrt{8 - \sqrt{28}}$$

$$\sqrt{4 \cdot 7}$$

$$\sqrt{4} \cdot \sqrt{7}$$

$$\sqrt{8 - 2\sqrt{7}}$$

7.1

$$\sqrt{7} - \sqrt{1} \quad \times$$

$$\sqrt{2 - \sqrt{3}}$$

$$\sqrt{\frac{2(2 - \sqrt{3})}{2}}$$

$$\frac{4 - 2\sqrt{3}}{2}$$

$$\sqrt{4 - 2\sqrt{3}}$$

$$\sqrt{\frac{\sqrt{3} - \sqrt{1}}{12}} = \sqrt{\frac{3}{2} - \frac{1}{2}}$$

$$\sqrt{4\sqrt{3} - 6}$$

$$\sqrt{\sqrt{3}(4 - 2\sqrt{3})}$$

$$\sqrt[2]{\sqrt{3}} \sqrt{4 - 2\sqrt{3}}$$

$$\sqrt[4]{3} \cdot (\sqrt[4]{3} - \sqrt[4]{1})$$

$$\sqrt[4]{3} (\sqrt[4]{3^2} - \sqrt[4]{1})$$

$$\sqrt[4]{3^3} - \sqrt[4]{3}$$

$$\sqrt[4]{27} - \sqrt[4]{3}$$

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$$(X+1)^4 + 4(X+1)^3 - 2(X+1)^2 - 11X$$

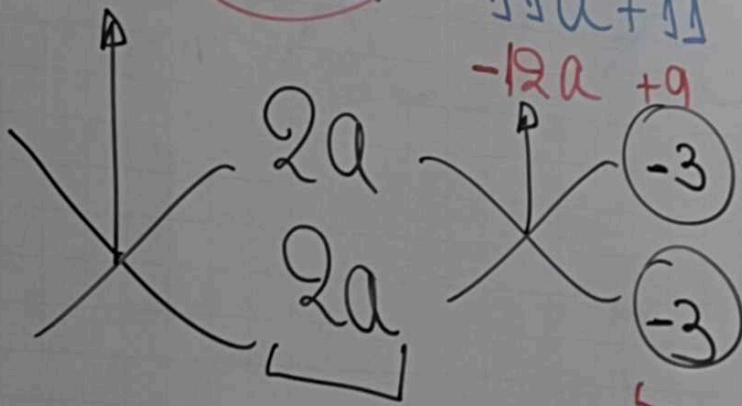
$$R_1 = ax + b$$

$$E = b^2 - a$$

$$\cancel{a^4} + 4\cancel{a^3} - 2a^2 - 11a + 11$$

$$a^2$$

$$a^2$$



$$\text{ALTA: } 4a^2$$

$$\text{SALE: } -6a^2$$

$$R_1 = a + 2$$

$$R_1 = X + 1 + 2$$

$$X + 3$$

$$ax + b$$

$$a = 1 \quad b = 3$$

$$E = b^2 - a$$

$$3^2 - 1 \Rightarrow 8$$

E L  
TOS CANG

DMK

②

Coef principal  $Ruiz + a + b \Rightarrow 8$

$$ax^4 + bx^3 - x^2 - 30x + 25$$

Ruiz ES EXACTA.

$$1x^2$$

$$1x^2$$

$$3x$$

$$3x$$

$$-5$$

$$-5$$

FALTA:  $9x^2$

SALE:  $-10x^2$



# EXERCICIOS

① Hallar la Raíz.

≤ coef de / Raíz.

$$34x^4 - 20x^5 + 25x^6 - 52x^3 + 24x^2 + 15$$

$$25x^2$$

Residuo p  
 $(-x^2) + 24x - 1$

So'  ~~$25x^6 - 20x^5 + 34x^4 - 52x^3 + 24x^2 + 15$~~

Diagram illustrating the process of finding the root of the polynomial by matching coefficients:

- Terms in circles:  $5x^3$ ,  $-2x^2$ ,  $3x$ ,  $-4$
- Arrows indicate cancellations between terms.
- Resulting terms shown below:  $4x^4$  and  $9x^2$

$$-1 + 24 - 1$$

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## Raíz Cuadrada

PAV

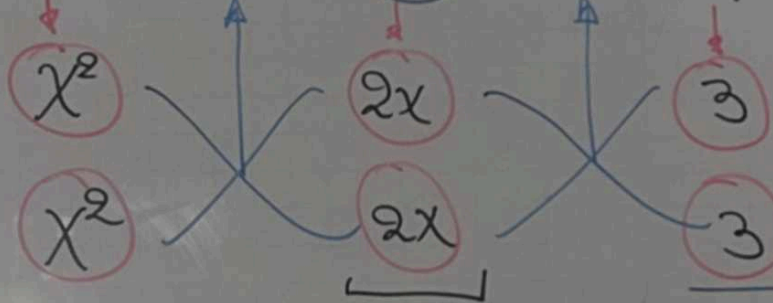
Hallar su Raíz y su Res

$$P(x) = x^4 + 6x^3 + 13x^2 + 15x + 3$$

Hallar el Residuo

$$+3x-1 = R(x)$$

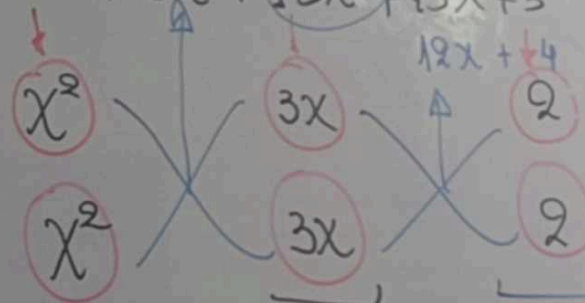
$$x^4 + 4x^3 + 10x^2 + 12x + 9$$



$$\text{FALTA: } 4x^2$$

$$\text{SALE: } 6x^2$$

$$\therefore (x^2 + 2x + 3) \Rightarrow \text{Raíz}$$



$$\text{FALTA: } 9x^2$$

$$\text{SALE: } 4x^2$$

$$\therefore (x^2 + 3x + 2)^2 + (3x - 1) = P(x)$$

$$\sqrt{\quad} \quad \begin{array}{r} x^2 + 3x + 2 \\ \hline 3x - 1 \end{array}$$

$$3x - 1$$

E L  
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$$\sqrt[3]{\frac{2}{3}} - 4\sqrt[3]{\frac{9}{4}} + 6\sqrt[3]{\frac{16}{81}} + 8\sqrt[3]{\frac{1}{12}} - \sqrt[3]{18}$$

$$-2 \cdot 2\sqrt[3]{\frac{9}{4}} + 6\sqrt[3]{\frac{2 \cdot 2}{3 \cdot 3}} + 4 \cdot 2\sqrt[3]{\frac{1}{12}}$$

$$2\sqrt[3]{\frac{9}{4} \cdot 2^3} + 6 \cdot \frac{2}{3}\sqrt[3]{\frac{2}{3}} + 4\sqrt[3]{\frac{1}{12} \cdot 8}$$

$$\sqrt[3]{\frac{2}{3}} - 2\sqrt[3]{18} + 4\sqrt[3]{\frac{2}{3}} + 4\sqrt[3]{\frac{2}{3}} - \sqrt[3]{18}$$

$$9\sqrt[3]{\frac{2}{3}} - 3\sqrt[3]{18}$$

$$3 \cdot 3\sqrt[3]{\frac{2}{3}} - 3\sqrt[3]{18}$$

$$3 \cdot \sqrt[3]{\frac{2 \cdot 27}{3 \cdot 1}} - 3\sqrt[3]{18}$$

$$3\sqrt[3]{18} - 3\sqrt[3]{18}$$

0

$$\sqrt[2]{\frac{2(\sqrt{30} + \sqrt{10} + \sqrt{3})}{2}}$$

a+b+c

7



(8)  $\sqrt{m + \sqrt{8m-16}} - \sqrt{m - \sqrt{8m-16}}$   
 $\quad \quad \quad (m-2) \quad \quad \quad 8(m-2)$

$\sqrt{m + \sqrt{4 \cdot 2(m-2)}} - \sqrt{m - \sqrt{4 \cdot 2(m-2)}}$

$\sqrt{m+2} \sqrt{2(m-2)} - \sqrt{m-2} \sqrt{2(m-2)}$   
 Mayor Menor

$\sqrt{2} + \sqrt{m-2} - (\sqrt{2} - \sqrt{m-2})$

$\cancel{\sqrt{2}} + \sqrt{m-2} - \cancel{\sqrt{2}} + \sqrt{m-2}$

$2\sqrt{m-2}$

$2 < m < 4$

$2-2 < m-2 < 4-2$

$0 < m-2 < 2$

(10)

(C)

$\sqrt{14} + \sqrt{140} + \sqrt{40} + \sqrt{56}$   
 $\quad \quad \quad 4.35 \quad \quad 4.10 \quad \quad 4.14$

$\sqrt{14 + 2\sqrt{35} + 2\sqrt{10} + 2\sqrt{14}}$   
 $\quad \quad \quad \downarrow \quad \quad \uparrow \quad \quad \uparrow \quad \quad \uparrow$   
 $\quad \quad \quad 5+7+2 \quad 5.7 \quad 5.2 \quad 7.2$

$\sqrt{5} + \sqrt{7} + \sqrt{2}$

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$$\begin{aligned} & \sqrt{\frac{y}{4x} + \frac{1}{5y} + \sqrt{\frac{x}{2y}}} \\ & + \sqrt{\frac{(4)}{4} \frac{x}{2y}} \\ & + 2\sqrt{\frac{x}{8y}} \\ & + 2\sqrt{\frac{(5x)}{(8)5y}} \\ & + 2\sqrt{\left(\frac{5x}{8}\right)\left(\frac{1}{5y}\right)} \end{aligned}$$

$$\frac{y}{4x} = \frac{5x}{8}$$

$$2y = 5x^2$$

$$0,4y = x^2$$

$$\sqrt{0,4y} = x$$

$$\sqrt{\frac{2( )}{2}}$$

$$\sqrt{2ax + (4by)} + 2\sqrt{(3ab + 4y)(2x)}$$

$$\frac{4ab+c}{8c+ab}$$

$$4b = 3ab + c$$

$$4b = 3b + c$$

$$b = c$$

$$2ax = 2x$$

$$a = 1$$

12

105