

Racionalización

Recordar

Productos notables – factorización

- i) $(a \pm b)^2 = a^2 \pm 2ab + b^2$
- ii) $(a + b)(a - b) = a^2 - b^2$
- iii) $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
- iv) $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

Raíces:

- i) $a^{\frac{m}{n}} = \sqrt[n]{a^m} \rightarrow (\sqrt[n]{a})^m = \sqrt[n]{a^m} = a^{\frac{m}{n}} = a^1 = a$
- ii) $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$

$$\text{iii) } \sqrt[n]{a} : \sqrt[n]{b} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$$

$$\text{iv) } \sqrt[n]{\sqrt[m]{a}} = \sqrt[nm]{a}$$

$$\text{v) } a\sqrt[n]{b} = \sqrt[n]{a^n b}$$

vi) Si k es el mínimo común múltiplo

$$\text{entre m y n. } \sqrt[n]{a} \cdot \sqrt[m]{b} = \sqrt[k]{a^{\frac{k}{n}} b^{\frac{k}{m}}}$$

vii) Si k es el mínimo común múltiplo

$$\text{entre m y n. } \frac{\sqrt[n]{a}}{\sqrt[m]{b}} = \sqrt[k]{\frac{a^{\frac{k}{n}}}{b^{\frac{k}{m}}}}$$

Ejercicios

$$1. \frac{1}{\sqrt{3}} =$$

$$2. \frac{3}{4\sqrt{5}} =$$

$$3. \frac{1}{\sqrt[3]{9x}} =$$

$$4. \frac{x}{\sqrt[4]{27x^2}} =$$

$$5. \frac{1}{5a\sqrt[4]{25x^3}} =$$

$$6. \frac{a^2 - b^2}{\sqrt{a-b}} =$$

$$7. \frac{3 - \sqrt{2}}{1 + \sqrt{2}} =$$

$$8. \frac{\sqrt{2} - \sqrt{5}}{\sqrt{2} + \sqrt{5}} =$$

$$9. \frac{19}{5\sqrt{2} - 4\sqrt{3}} =$$

$$10. \frac{5\sqrt{2} - 6\sqrt{3}}{4\sqrt{2} - 3\sqrt{3}} =$$

$$11. \frac{9\sqrt{3} - 3\sqrt{2}}{6 - \sqrt{6}} =$$

$$12. \frac{\sqrt{a} - \sqrt{a+1}}{\sqrt{a} + \sqrt{a+1}} =$$

$$13. \frac{\sqrt{a+b} - \sqrt{a-b}}{\sqrt{a+b} + \sqrt{a-b}} =$$

$$14. \frac{3}{\sqrt{1-\sqrt{3}}} =$$

$$15. \frac{a-b}{\sqrt{a-b}} =$$

$$16. \frac{\sqrt{2-\sqrt{5}}}{\sqrt{\sqrt{2-5}}} =$$

$$17. \frac{a-\sqrt{b}}{\sqrt{a-\sqrt{b}}} =$$

$$18. \frac{x}{\sqrt{x+\sqrt{x}}} =$$

$$19. \frac{b+\sqrt{b}}{\sqrt{b-1}} =$$

$$20. \frac{\sqrt{3}}{\sqrt{2+\sqrt{3}-\sqrt{5}}} =$$

$$21. \frac{\sqrt{2}}{\sqrt{2+\sqrt{3}+\sqrt{6}}} =$$

$$22. \frac{2-\sqrt{3}}{2+\sqrt{3}+\sqrt{5}} =$$

$$23. \frac{\sqrt{3}+\sqrt{5}}{\sqrt{2+\sqrt{3}+\sqrt{5}}} =$$

$$24. \frac{\sqrt{6}+\sqrt{3}+\sqrt{2}}{\sqrt{6+\sqrt{3}-\sqrt{2}}} =$$

$$25. \frac{\sqrt{2}-\sqrt{5}}{\sqrt{2+\sqrt{5}-\sqrt{10}}} =$$

$$26. \frac{1}{\sqrt[3]{5}+\sqrt[3]{2}} =$$

$$27. \frac{1}{\sqrt[3]{a}-\sqrt[3]{b}} =$$

$$28. \frac{1}{\sqrt[4]{a}+\sqrt[4]{b}} =$$