

EJERCICIOS RADICALES – RACIONALIZACIÓN

Racionaliza y simplifica:

a) $\frac{2}{\sqrt{3}}$

b) $\frac{1}{2\sqrt{2}}$

c) $\frac{5}{2\sqrt{5}}$

d) $\frac{2}{\sqrt{6}}$

e) $\frac{2}{\sqrt{5} - \sqrt{3}}$

f) $\frac{1}{1 + \sqrt{2}}$

g) $\frac{3 + \sqrt{2}}{\sqrt{2}}$

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

i) $\frac{2}{\sqrt[3]{3}}$

j) $\frac{3}{\sqrt[3]{3^2}}$

k) $\frac{3}{\sqrt[5]{2^3}}$

SOLUCIONES

$$\text{a) } \frac{2}{\sqrt{3}} = \frac{2 \cdot \sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} = \frac{2\sqrt{3}}{\sqrt{3^2}} = \frac{2\sqrt{3}}{3}$$

$$\text{b) } \frac{1}{2\sqrt{2}} = \frac{1 \cdot \sqrt{2}}{2\sqrt{2} \cdot \sqrt{2}} = \frac{\sqrt{2}}{2 \cdot 2} = \frac{\sqrt{2}}{4}$$

$$\text{c) } \frac{5}{2\sqrt{5}} = \frac{5 \cdot \sqrt{5}}{2\sqrt{5} \cdot \sqrt{5}} = \frac{5\sqrt{5}}{2 \cdot 5} = \frac{\sqrt{5}}{2}$$

$$\text{d) } \frac{2}{\sqrt{6}} = \frac{2 \cdot \sqrt{6}}{\sqrt{6} \cdot \sqrt{6}} = \frac{2\sqrt{6}}{6} = \frac{\sqrt{6}}{3}$$

$$\begin{aligned} \text{e) } \frac{2}{\sqrt{5} - \sqrt{3}} &= \frac{2(\sqrt{5} + \sqrt{3})}{(\sqrt{5} - \sqrt{3})(\sqrt{5} + \sqrt{3})} = \frac{2(\sqrt{5} + \sqrt{3})}{(\sqrt{5})^2 - (\sqrt{3})^2} = \frac{2(\sqrt{5} + \sqrt{3})}{5 - 3} = \\ &= \frac{2(\sqrt{5} + \sqrt{3})}{2} = \sqrt{5} + \sqrt{3} \end{aligned}$$

$$\text{f) } \frac{1}{1 + \sqrt{2}} = \frac{1 - \sqrt{2}}{(1 + \sqrt{2})(1 - \sqrt{2})} = \frac{1 - \sqrt{2}}{1^2 - (\sqrt{2})^2} = \frac{1 - \sqrt{2}}{1 - 2} = \frac{1 - \sqrt{2}}{-1} = -1 + \sqrt{2}$$

$$\text{g) } \frac{3 + \sqrt{2}}{\sqrt{2}} = \frac{(3 + \sqrt{2}) \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{3\sqrt{2} + \sqrt{2} \cdot \sqrt{2}}{\sqrt{2}^2} = \frac{3\sqrt{2} + 2}{2}$$

$$\text{h) } \frac{\sqrt{2}}{3 - \sqrt{2}} = \frac{\sqrt{2}(3 + \sqrt{2})}{(3 - \sqrt{2})(3 + \sqrt{2})} = \frac{3\sqrt{2} + \sqrt{2} \cdot \sqrt{2}}{3^2 - (\sqrt{2})^2} = \frac{3\sqrt{2} + 2}{9 - 2} = \frac{3\sqrt{2} + 2}{7}$$

$$\text{i) } \frac{2}{\sqrt[3]{3}} = \frac{2 \cdot \sqrt[3]{3^2}}{\sqrt[3]{3} \cdot \sqrt[3]{3^2}} = \frac{2\sqrt[3]{3^2}}{\sqrt[3]{3^3}} = \frac{2\sqrt[3]{9}}{3}$$

$$\text{j) } \frac{3}{\sqrt[3]{3^2}} = \frac{3 \cdot \sqrt[3]{3}}{\sqrt[3]{3^2} \cdot \sqrt[3]{3}} = \frac{3\sqrt[3]{3}}{\sqrt[3]{3^3}} = \frac{3\sqrt[3]{3}}{3} = \sqrt[3]{3}$$

$$\text{k) } \frac{3}{\sqrt[5]{2^3}} = \frac{3 \cdot \sqrt[5]{2^2}}{\sqrt[5]{2^3} \cdot \sqrt[5]{2^2}} = \frac{3\sqrt[5]{2^3}}{\sqrt[5]{2^5}} = \frac{3\sqrt[5]{8}}{2}$$