

Raíces: racionalización

1. Racionaliza las siguientes expresiones de la forma $\frac{b}{\sqrt{a}}$:

a. $\frac{2}{\sqrt{12}}$

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

d. $\frac{1}{\sqrt{7}}$

$$\frac{\sqrt{7}}{7}$$

g. $\frac{17}{5\sqrt{11}}$

$$\frac{17\sqrt{11}}{55}$$

j. $\frac{2ab}{\sqrt{a-b}}$

$$\frac{2ab\sqrt{a-b}}{a-b}$$

b. $\frac{-9}{\sqrt{3}}$

$$-3\sqrt{3}$$

e. $\frac{5}{\sqrt{10}}$

$$\frac{\sqrt{10}}{7}$$

h. $\frac{31}{\sqrt[3]{13}}$

$$\frac{31\sqrt[3]{169}}{13}$$

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

$$\frac{(a-b)\sqrt{a^2-b^2}}{a^2-b^2}$$

c. $\frac{10}{\sqrt{5}}$

$$2\sqrt{5}$$

f. $\frac{6}{\sqrt{14}}$

$$\frac{3\sqrt{14}}{7}$$

i. $\frac{-1}{\sqrt{xy}}$

$$\frac{-\sqrt{xy}}{xy}$$

l. $\frac{\sqrt{1}}{3\sqrt{6x}}$

$$\frac{-\sqrt{6y}}{xy}$$

2. Racionaliza las siguientes expresiones de la forma $\frac{b}{\sqrt[n]{a^m}}$:

a. $\frac{-1}{\sqrt[3]{2}}$

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

d. $\frac{-10}{\sqrt[3]{5^3}}$

$$-2$$

g. $\frac{19}{\sqrt[9]{10^4}}$

$$\frac{19\sqrt[9]{10^5}}{10}$$

b. $\frac{6}{\sqrt[3]{2^2}}$

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

e. $\frac{6}{\sqrt[6]{11^2}}$

$$\frac{6\sqrt[6]{11^4}}{11}$$

h. $\frac{ab}{\sqrt[9]{10^2}}$

$$\frac{ab\sqrt[9]{10^3}}{10}$$

c. $\frac{\sqrt{2}}{\sqrt[4]{3}}$

$$\frac{\sqrt{2} \cdot \sqrt[4]{3^3}}{3}$$

f. $\frac{-\sqrt{3}}{\sqrt[7]{6^5}}$

$$\frac{-\sqrt{3} \cdot \sqrt[7]{36}}{6}$$

i. $\frac{16}{3\sqrt[4]{3x}}$

$$\frac{16\sqrt[4]{27x^3}}{9x}$$

3. Racionaliza las siguientes expresiones de la forma $\frac{a}{\sqrt{b} \pm \sqrt{c}}$:

a. $\frac{13}{\sqrt{3} - \sqrt{2}}$

$$13\sqrt{3} + 13\sqrt{2}$$

e. $\frac{2\sqrt{3}}{\sqrt{11} - \sqrt{3}}$

$$\frac{\sqrt{3}(\sqrt{11} + \sqrt{3})}{8}$$

i. $\frac{-4}{\sqrt{x} - \sqrt{y}}$

$$\frac{4(\sqrt{x} - 4\sqrt{y})}{x - y}$$

b. $\frac{5}{\sqrt{5} + 1}$

$$\frac{5\sqrt{5} - 5}{4}$$

f. $\frac{2}{\sqrt{3} - \sqrt{2}}$

$$2\sqrt{3} + 2\sqrt{2}$$

j. $\frac{2x}{\sqrt{x} + 1}$

$$\frac{4x(\sqrt{x} - 1)}{x - 1}$$

c. $\frac{-3}{\sqrt{6} + \sqrt{3}}$

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

g. $\frac{10}{2\sqrt{3} + 3}$

$$\frac{10(2\sqrt{3} - 3)}{3}$$

k. $\frac{3}{\sqrt{2x+1} - 1}$

$$\frac{3(\sqrt{2x+1} + 3)}{x - 1}$$

d. $\frac{\sqrt{2}}{1 - \sqrt{7}}$

$$\frac{\sqrt{2}(1 + \sqrt{7})}{6}$$

h. $\frac{5\sqrt{5}}{\sqrt{15} + 4\sqrt{2}}$

$$\frac{5(\sqrt{3} - 4\sqrt{10})}{-17}$$

l. $\frac{\sqrt{x}}{\sqrt{x} - 2\sqrt{y}}$

$$\frac{x + 2\sqrt{xy}}{x - 4y}$$