Potenza a esponente razionale

$$\sqrt{2} = 2^{x}$$

$$(\sqrt{2})^{2} = (2^{x})^{2}$$

$$2^{1} = 2^{2x}$$

$$1 = 2x \implies x = \frac{1}{2}$$

$$\sqrt{2} = 2^{\frac{1}{2}}$$

$$\sqrt[n]{a^{m}} = a^{\frac{m}{n}}$$

$$\sqrt[3]{2^{7}} = 2^{\frac{7}{3}}$$

$$\sqrt[4]{\frac{a^6 b^2}{c^8}} = \sqrt{\frac{a^3 b}{c^4}}$$

$$\frac{a^{\frac{6}{4}} \cdot b^{\frac{2}{4}}}{c^{8/4}} = \frac{a^{\frac{3}{2}} b^{\frac{1}{2}}}{c^2} = \frac{\sqrt{a^3 b}}{c^2}$$

$$\left(a^{\frac{1}{2}} b^{\frac{3}{2}} \cdot c^{\frac{1}{2}}\right)^{\frac{1}{2}} = \sqrt{\sqrt{ab^3c}}$$

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

$$= a^{\frac{2}{3}+\frac{3}{4}} = a^{\frac{8+9}{12}} = a^{\frac{17}{12}} = \sqrt[12]{a^{17}} =$$

$$= a\sqrt[12]{a^5}$$