$$\frac{3}{2+\sqrt[3]{4}} \cdot \frac{4-2\sqrt[3]{4}+\sqrt[3]{16}}{4-2\sqrt[3]{4}+\sqrt[3]{16}} =$$

$$a^3+b^3 = (a+b)(a^2-ab+b^2)$$

$$= \frac{3(4-2\sqrt[3]{4}+\sqrt[3]{16})}{8+4} =$$

$$= \frac{\cancel{3}(4-2\sqrt[3]{4}+2\sqrt[3]{2})}{\cancel{12}_{4}} =$$

$$= \frac{\cancel{2}(2-\sqrt[3]{4}+\sqrt[3]{2})}{\cancel{4}_{2}} =$$

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

$$\frac{a-4b^2}{\sqrt{a}-2b} = \frac{\cancel{(\sqrt{a}-2b)}(\sqrt{a}+2b)}{\cancel{\sqrt{a}-2b}} =$$

$$= \sqrt{a}+2b$$

$$\frac{\sqrt{a}}{a-\sqrt{a}b} \cdot \frac{a+\sqrt{a}b}{a+\sqrt{a}b} =$$

$$= \frac{a\sqrt{a}+ab}{a^2-ab^2} = \frac{\cancel{a}(\sqrt{a}+b)}{\cancel{a}(a-b^2)} =$$

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

$$= \frac{1}{\sqrt{a}-b} \cdot \frac{\sqrt{a}+b}{\sqrt{a}+b} = \frac{\sqrt{a}+b}{a-b^2}$$

SUPERFLUI

$$\frac{\sqrt{a}+2\sqrt{b}}{\sqrt{a}-2\sqrt{b}} \cdot \frac{\sqrt{a}+2\sqrt{b}}{\sqrt{a}+2\sqrt{b}} =$$

$$= \frac{a+4b+4\sqrt{ab}}{a-4b}$$

$$\frac{2}{x} + \frac{1}{x-\sqrt{3}} - \frac{\sqrt{3}}{x} = 0$$

$$\frac{2x-2\sqrt{3}+x-\sqrt{3}x+3}{\cancel{x(x-\sqrt{3})}} = 0$$

C.E. $x \neq 0$; $x \neq \sqrt{3}$

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

$$(3-\sqrt{3})x = 2\sqrt{3} - 3$$

$$x = \frac{2\sqrt{3}-3}{3-\sqrt{3}} \cdot \frac{3+\sqrt{3}}{3+\sqrt{3}} =$$

$$= \frac{6\sqrt{3}+6-9-3\sqrt{3}}{9-3} = \frac{3\sqrt{3}-3}{6} =$$

$$= \frac{3(\sqrt{3}-1)}{6} = \frac{\sqrt{3}-1}{2} \quad \underline{\text{acc}}.$$

Radicali Doppi

$$\sqrt{a \pm \sqrt{b}} = \sqrt{\frac{a+\sqrt{a^2-b}}{2}} \pm \sqrt{\frac{a-\sqrt{a^2-b}}{2}}$$

$$\sqrt{\underset{a}{6} + \sqrt{\underset{b}{11}}} \qquad a^2 - b = 36 - 11 = 25 = 5^2$$

$$\sqrt{6+\sqrt{11}} = \sqrt{\frac{6+5}{2}} + \sqrt{\frac{6-5}{2}} = \sqrt{\frac{11}{2}} + \sqrt{\frac{1}{2}} =$$

$$= \frac{\sqrt{11}}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{\sqrt{22}}{2} + \frac{\sqrt{2}}{2}$$

Potenze con esponente razionale

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

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

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

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

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

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

$$a \geq 0$$

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

$$\sqrt{4} = \sqrt{2^2} = 2^{\frac{2}{2}} = 2$$

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

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

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

$$= \left(a^m\right)^{1/n} \cdot \left(b^k\right)^{1/n} = \left(a^m b^k\right)^{1/n}$$

$$\sqrt[n]{a} \cdot \sqrt[m]{a} = a^{\frac{1}{n}} \cdot a^{\frac{1}{m}} =$$

$$= a^{\frac{1}{n}+\frac{1}{m}} = a^{\frac{m+n}{nm}} = \sqrt[nm]{a^{m+n}}$$

$$2^{-1}\left[\left(2^{\frac{1}{2}}+3^{\frac{1}{2}}\right)^{-1}+\left(3^{\frac{1}{2}}-2^{\frac{1}{2}}\right)^{-1}\right] : (3)^{-\frac{1}{2}} =$$

$$= \frac{1}{2}\left[\left(\sqrt{2}+\sqrt{3}\right)^{-1}+\left(\sqrt{3}-\sqrt{2}\right)^{-1}\right] : \frac{1}{\sqrt{3}} =$$

$$= \frac{1}{2}\left[\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}-\sqrt{2}}\right] : \frac{1}{\sqrt{3}} =$$

$$= \frac{1}{2}\left[\frac{\sqrt{2}-\sqrt{3}}{2-3}+\frac{\sqrt{3}+\sqrt{2}}{3-2}\right] \cdot \sqrt{3} =$$

$$= \frac{1}{2}\left[\sqrt{3} - \cancel{\sqrt{2}} + \sqrt{3} + \cancel{\sqrt{2}}\right] \cdot \sqrt{3} =$$

$$= \frac{1}{\cancel{2}} \cdot \cancel{2}\sqrt{3} \cdot \sqrt{3} = 3$$