Razionalizzazione

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\boxed{\sqrt{2}}} = \frac{\sqrt{2}}{2}$$

fattore razionalizzante

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

$$\frac{4}{3\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{6} = \frac{2\sqrt{2}}{3}$$

$$\frac{2xy}{\sqrt{xy}} \cdot \frac{\sqrt{xy}}{\sqrt{xy}} = \frac{2\cancel{xy}\sqrt{xy}}{\cancel{xy}} = 2\sqrt{xy}$$

$$\frac{1}{\sqrt[3]{a}} \cdot \frac{\sqrt[3]{a^2}}{\sqrt[3]{a^2}} = \frac{\sqrt[3]{a^2}}{a}$$

$$\frac{1}{\sqrt[s]{a^t}} \cdot \frac{\sqrt[s]{a^{s-t}}}{\sqrt[s]{a^{s-t}}} = \frac{\sqrt[s]{a^{s-t}}}{a}$$

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

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

$$\frac{1}{\sqrt{7}+\sqrt{5}} \cdot \frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}-\sqrt{5}} = \frac{\sqrt{7}-\sqrt{5}}{7-5} = \frac{\sqrt{7}-\sqrt{5}}{2}$$

$$\frac{\sqrt{5}-\sqrt{2}}{\sqrt{5}+\sqrt{2}} \cdot \frac{\sqrt{5}-\sqrt{2}}{\sqrt{5}-\sqrt{2}} = \frac{(\sqrt{5}-\sqrt{2})^2}{5-2} =$$

$$= \frac{5+2-2\sqrt{10}}{3} = \frac{7-2\sqrt{10}}{3}$$

Equazioni

$$(\sqrt{3}x-1)^2+(x-\sqrt{3})(x+\sqrt{3}) = 4x^2$$

$$\cancel{3x^2}+1-2\sqrt{3}x+\cancel{x^2}-3 = \cancel{4x^2}$$

$$-2\sqrt{3}x = 3-1 \quad -2\sqrt{3}x = 2$$

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

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

$$\frac{x+\sqrt{3}}{\sqrt{3}-1} \cdot \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{(\sqrt{3}-1)^{2}x}{\sqrt{3}+1} \cdot \frac{\cancel{\sqrt{3}-1}}{\sqrt{3}-1} + \sqrt{3} - 1$$

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

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

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

$$3\sqrt{3}x - 3x = \sqrt{3} - 5$$

$$x(3\sqrt{3} - 3) = \sqrt{3} - 5$$

$$x = \frac{\sqrt{3} - 5}{3\sqrt{3} - 3} \cdot \frac{3\sqrt{3} + 3}{3\sqrt{3} + 3} =$$

$$= \frac{9 + 3\sqrt{3} - 15\sqrt{3} - 15}{27 - 9} = \frac{-6 - 12\sqrt{3}}{18} =$$

$$= \frac{-\cancel{6}^{1}(1+2\sqrt{3})}{\cancel{18}_{3}} = -\frac{1+2\sqrt{3}}{3}$$

Sistemi

$$\begin{cases} \sqrt{3}x - \sqrt{2}y = 1 \\ x + 3\sqrt{2}y = -2 \end{cases}$$

$$D = \begin{vmatrix} \sqrt{3} & -\sqrt{2} \\ 1 & 3\sqrt{2} \end{vmatrix} = 3\sqrt{6} + \sqrt{2}$$

$$D_x = \begin{vmatrix} 1 & -\sqrt{2} \\ -2 & 3\sqrt{2} \end{vmatrix} = 3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$$

$$D_y = \begin{vmatrix} \sqrt{3} & 1 \\ 1 & -2 \end{vmatrix} = -2\sqrt{3} - 1$$

$$x = \frac{\sqrt{2}}{3\sqrt{6}+\sqrt{2}} \cdot \frac{3\sqrt{6}-\sqrt{2}}{3\sqrt{6}-\sqrt{2}} = \frac{3\sqrt{12}-2}{54-2} =$$

$$= \frac{6\sqrt{3}-2}{52} = \frac{\cancel{2}(3\sqrt{3}-1)}{\cancel{52}\ 26} = \frac{3\sqrt{3}-1}{26}$$

$$y = \frac{-2\sqrt{3}-1}{3\sqrt{6}+\sqrt{2}} \cdot \frac{3\sqrt{6}-\sqrt{2}}{3\sqrt{6}-\sqrt{2}} =$$

$$= \frac{-6\sqrt{18}+2\sqrt{6}-3\sqrt{6}+\sqrt{2}}{52} =$$

$$= \frac{-18\sqrt{2}-\sqrt{6}+\sqrt{2}}{52} = \frac{-17\sqrt{2}-\sqrt{6}}{52}$$

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$$(1-\sqrt{2})\,x > 2\sqrt{2}$$

$$x < \frac{2\sqrt{2}}{1-\sqrt{2}} \cdot \frac{1+\sqrt{2}}{1+\sqrt{2}}$$

$$x < \frac{2\sqrt{2}+4}{1-2}, \quad x < -2\sqrt{2}-4$$