PAG. 63 N 718

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

$$\begin{cases} \frac{1}{2} \geq 0 \cdot x \Rightarrow \forall x \in \mathbb{R} \\ \frac{x-1}{2x+1} = \frac{1}{4} \end{cases}$$

$$\frac{x-1}{2x+1} = \frac{1}{4} \qquad \text{C.E.} \quad x \neq -\frac{1}{2}$$

$$4x - 4 = 2x + 1$$

$$2x = 5 \qquad \boxed{x = \frac{5}{2}}$$

GENERALIZZAZIONE IMPORTANTE

$$\sqrt[n]{f(x)} = g(x) \quad n \text{ PARI} \Longrightarrow \begin{cases} g(x) \geq 0 \\ f(x) = g^n(x) \end{cases}$$

$$\sqrt[n]{f(x)} = g(x) \quad n \text{ DISPARI} \Longrightarrow f(x) = g^n(x)$$

PAG. 64 N 736 $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$

C.E. $x \neq 0$

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

$$\sqrt[3]{x^3-2}+2 = x$$

$$\sqrt[3]{x^3-2} = x-2$$

$$x^3-2 = (x-2)^3$$

$$x^3-2 = x^3-6x^2+12x-8$$

$$6x^2-12x+6=0$$

$$x^2-2x+1=0$$

$$(x-1)^2=0$$

$$\boxed{x=1}$$

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

$$\sqrt{(-5)^2} = |-5|$$

$$(x-1)^2 = 4$$

$$\Downarrow$$

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

$$\Downarrow$$

$$|x-1| = 2$$

$$x-1 = 2 \quad \vee \quad x-1 = -2$$

$$\Rightarrow$$

$$x = 3 \quad \vee \quad x = -1$$

PAG. 65 N 746

$$\sqrt{f(x)} = \sqrt{g(x)}$$

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

$$\begin{cases} \cancel{3x^2-2x+1 \geq 0} \\ 3x-1 \geq 0 \\ 3x^2-2x+1 = 3x-1 \end{cases} \qquad \begin{cases} x \geq \frac{1}{3} \\ \\ 3x^2-5x+2=0 \end{cases}$$

$$\Delta = 25-24 = 1$$

$$x = \frac{5 \pm 1}{6} = \begin{cases} \frac{2}{3} \\ 1 \end{cases}$$

$$\boxed{x=1 \quad \vee \quad x=\frac{2}{3}}$$