

$$\sqrt{A(x)} = \sqrt{B(x)}$$

$$\begin{cases} A(x) \geq 0 \\ B(x) \geq 0 \\ A(x) = B(x) \end{cases} \quad \left. \begin{array}{l} \leftarrow \\ \leftarrow \end{array} \right\} \begin{array}{l} \text{SERVE SOLO UNA DI QUESTE DUE,} \\ \text{LA PIÙ SEMPLICE} \end{array}$$

18.61

724

$$\sqrt{x-2} = \sqrt{x^2-4}$$

$$\begin{cases} x-2 = x^2-4 \\ x-2 \geq 0 \end{cases}$$

$$\begin{cases} x^2-x-2=0 \\ x \geq 2 \end{cases}$$

$$\begin{cases} (x-2)(x+1)=0 \\ x \geq 2 \end{cases}$$

↑
SCELGO LA PIÙ SEMPLICE

$$\begin{cases} x=2 \vee \overset{\text{N.A.}}{x=-1} \\ x \geq 2 \end{cases}$$

$$x=2$$

IN GENERALE

M PARI

$$\sqrt[m]{A(x)} = \sqrt[m]{B(x)}$$

$$\begin{cases} A(x) = B(x) \\ A(x) \geq 0 \\ B(x) \geq 0 \end{cases} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{UNA DELLE} \\ \text{DUE} \end{array}$$

M DISPARI

$$\begin{aligned} \sqrt[m]{A(x)} &= \sqrt[m]{B(x)} \\ \Downarrow \\ A(x) &= B(x) \end{aligned}$$

730

$$\sqrt[3]{5x-1} = \sqrt[3]{x+4}$$

$$5x-1 = x+4$$

$$5x-x = 4+1$$

$$4x = 5$$

$$x = \frac{5}{4}$$

731

$$\sqrt{2x+7} = 3 - \sqrt{1-x}$$

[-3;1]

↓ elevo al quadrato

$$2x+7 = 9 + (1-x) - 6\sqrt{1-x}$$

$$6\sqrt{1-x} = 9 + 1 - x - 2x - 7$$

$$6\sqrt{1-x} = 3 - 3x$$

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

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

↓ elevo ancora al quadrato

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

$$x^2 + 2x - 3 = 0$$

$$(x+3)(x-1) = 0 \begin{cases} x = -3 \\ x = 1 \end{cases}$$

controllo:

$$x = -3 \quad \sqrt{1} = 3 - \sqrt{4}$$

$$1 = 1 \quad \text{OK}$$

$$x = 1 \quad \sqrt{9} = 3 - 0$$

$$3 = 3 \quad \text{OK}$$

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

737

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

↓ eleva al 2

$$2x-1 = 4(x+4) + 9 - 12\sqrt{x+4}$$

$$2x-1 = 4x+16+9-12\sqrt{x+4}$$

$$12\sqrt{x+4} = 2x+26$$

$$6\sqrt{x+4} = x+13$$

eleva al 2 ↓

$$36(x+4) = x^2 + 169 + 26x$$

$$x^2 - 10x + 25 = 0$$

$$(x-5)^2 = 0 \quad x=5$$

CONTROLO

$$x=5$$

$$\sqrt{9} = 2\sqrt{9} - 3$$

$$x=5$$

$$3 = 6 - 3 \text{ ok}$$

738

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

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

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

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

$$9x^2 + 9 - 18x = 16x^2 - 16$$

$$7x^2 + 18x - 25 = 0$$

$$\frac{\Delta}{4} = 81 + 175 = 256$$

$$= 16^2$$

$$x = \frac{-9 \pm 16}{7} = \begin{cases} -\frac{25}{7} \\ 1 \end{cases}$$

controllo

$$x = -\frac{25}{7}$$

N.Acc.

$$-\sqrt{\frac{625}{49} - 1} + \sqrt{\frac{625}{49} - \frac{75}{7}} = 2$$

$$\frac{625 - 525}{49}$$

$$-\sqrt{\frac{576}{49}} + \sqrt{\frac{100}{49}} = 2$$

$$-\frac{24}{7} + \frac{10}{7} = 2$$

$$-2 = 2 \text{ FALSO!}$$

controllo

$$x = 1$$

$$-\sqrt{0} + \sqrt{4} = 2$$

$$2 = 2 \text{ OK!}$$

$$\boxed{x = 1}$$