735 $\sqrt{x}-3=\sqrt{3}-\sqrt{12-x}$ [3; 9]

$$\begin{cases} x \geq 0 \\ 12-x \geq 0 \end{cases} \Rightarrow \quad 0 \leq x \leq 12$$

$$\begin{cases} \sqrt{x}+\sqrt{12-x}=3+\sqrt{3} \end{cases}$$

$$\begin{cases} 0 \leq x \leq 12 \\ x+12-x+2\sqrt{x(12-x)}=9+3+6\sqrt{3} \end{cases}$$

$$\begin{cases} 0 \leq x \leq 12 \\ 2\sqrt{x(12-x)}=6\sqrt{3} \end{cases}$$

$$\begin{cases} 0 \leq x \leq 12 \\ \sqrt{x(12-x)}=3\sqrt{3} \end{cases}$$

$$\begin{cases} 0 \leq x \leq 12 \\ x(12-x)=27 \end{cases}$$

$$x^2-12x+27=0$$

$$(x-3)(x-9)=0$$

$$\boxed{x=3 \ \vee \ x=9}$$

743 $\dfrac{2}{\sqrt{4x+5}}=\dfrac{9}{\sqrt{4x^2+x-5}}-\dfrac{1}{\sqrt{x-1}}$ [5]

$$4x^2+x-5=4x^2-4x+5x-5=4x(x-1)+5(x-1)=(x-1)(4x+5)$$

somma $=1$, prod. $=-20$ $\Rightarrow 5, -4$

C.E.

$$\begin{cases} 4x+5>0 \\ x-1>0 \end{cases} \Rightarrow \begin{cases} x>-\frac{5}{4} \\ x>1 \end{cases} \Rightarrow x>1$$

$$\frac{2}{\sqrt{4x+5}}+\frac{1}{\sqrt{x-1}}=\frac{9}{\sqrt{4x^2+x-5}}$$

$$\frac{2\sqrt{x-1}+\sqrt{4x+5}}{\sqrt{(4x+5)(x-1)}}=\frac{9}{\sqrt{(4x^2+x-5)}}$$

$$\begin{cases} x>1 \\ 2\sqrt{x-1}+\sqrt{4x+5}=9 \end{cases} \qquad \begin{cases} x>1 \\ 4(x-1)+4x+5+4\underbrace{\sqrt{4x^2+x-5}}_{(x-1)(4x+5)}=81 \end{cases}$$

$$\begin{cases} x>1 \\ 4\sqrt{4x^2+x-5}=81-8x-1 \end{cases}$$

$$\begin{cases} x>1 \\ 4\sqrt{4x^2+x-5}=80-8x \end{cases} \qquad \begin{cases} x>1 \\ \sqrt{4x^2+x-5}=20-2x \end{cases}$$

$$\begin{cases} x>1 \\ 20-2x\geq 0 \Rightarrow x\leq 10 \\ 4x^2+x-5=400+4x^2-80x \end{cases} \qquad \begin{cases} 1<x\leq 10 \\ 81x=405 \end{cases} \qquad \begin{cases} 1<x\leq 10 \\ x=\frac{405}{81}=5 \end{cases}$$

$$\boxed{x=5}$$

DISEQUAZIONI IRRAZIONALI

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

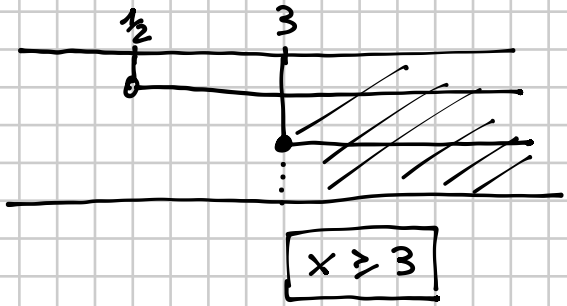
$$\begin{cases} B(x) > 0 \\ A(x) \geq 0 \\ A(x) < B^2(x) \end{cases}$$

768 $\sqrt{x-3} < 2x-1$ $[x \geq 3]$

$$\begin{cases} 2x-1 > 0 \\ x-3 \geq 0 \\ x-3 < (2x-1)^2 \end{cases} \qquad \begin{cases} x > \frac{1}{2} \\ x \geq 3 \\ x-3 < 4x^2+1-4x \end{cases}$$

$$\begin{cases} x > \frac{1}{2} \\ x \geq 3 \\ 4x^2-5x+4 > 0 \end{cases} \qquad \begin{cases} x > \frac{1}{2} \\ x \geq 3 \\ \forall x \in \mathbb{R} \end{cases}$$

$\Delta = 25 - 64 < 0$



$x \geq 3$