n. 45

$$\sqrt{12x-1} - x = 3$$

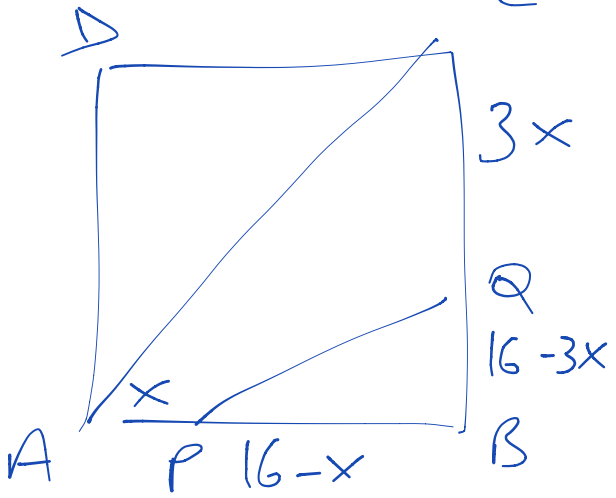
$$\sqrt{12x-1} = x+3$$

$$12x-1 = x^2+6x+9$$

$$x^2-6x+10 = 0$$

$$\frac{\Delta}{4} = 9-10 = -1$$

n. 594



$\overline{AP} = x$

$A(APQC) > 40\ cm^2$

$\overline{AB} = 16\ cm$

$0 \leq x \leq 16$

$$A(APQC) = \frac{1}{2} \cdot 16^2 - \frac{(16-3x)(16-x)}{2}$$

$$16^2 - 16^2 + 16x + 48x - 3x^2 > 80$$

$$3x^2 - 64x + 80 < 0$$

$$\frac{4}{3} < x < 20$$

Disequazioni irrazionali

$$\sqrt{5x-1} < 2x$$

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

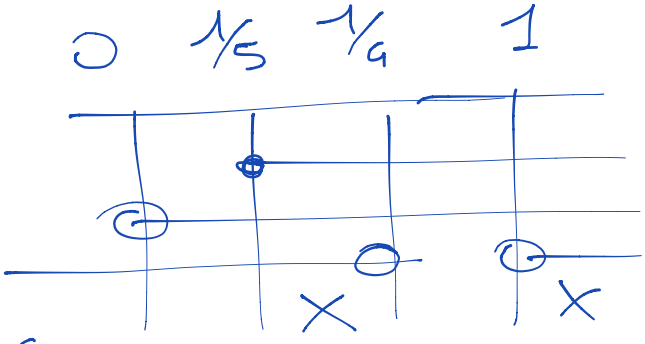
$$\begin{cases} 5x-1 \geq 0 \\ 2x > 0 \\ 5x-1 < 4x^2 \end{cases}$$

$$\begin{cases} x \geq 1/5 \\ x > 0 \\ 4x^2-5x+1 > 0 \end{cases}$$

$$\begin{cases} x \geq 1/5 \\ x > 0 \\ x < 1/4 \vee x > 1 \end{cases}$$

$$\Delta = 25-16 = 9$$

$$x_{1,2} = \frac{5 \pm 3}{8} \begin{matrix} \nearrow 1 \\ \searrow 1/4 \end{matrix}$$

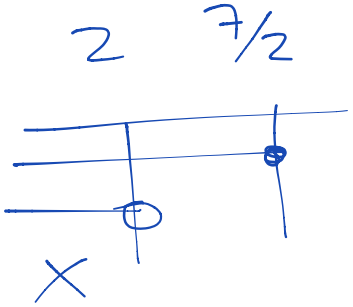


$$S = \left(\frac{1}{5}; \frac{1}{4}\right) \cup \left(1; +\infty\right)$$

$$\sqrt{7-2x} > x-2$$

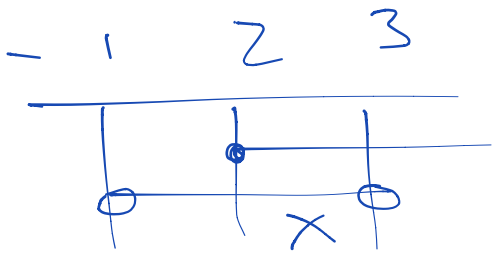
$$\begin{cases} 7-2x \geq 0 \\ x-2<0 \end{cases} \cup \begin{cases} x-2 \geq 0 \\ 7-2x > x^2-4x+4 \end{cases}$$

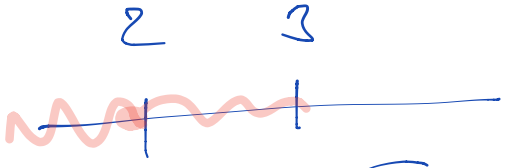
$$\begin{cases} x \leq 7/2 \\ x<2 \end{cases} \cup \begin{cases} x \geq 2 \\ x^2-2x-3<0 \\ (x-3)(x+1)<0 \end{cases}$$



$x<2$

$$\begin{cases} x \geq 2 \\ -1<x<3 \end{cases}$$





$2 \leq x < 3$

$S = (-\infty, 3)$