

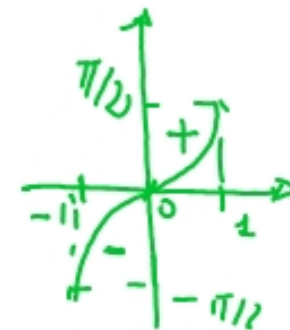
Esercizio 15: domini

$$y = \sqrt{\frac{\arcsin(x-2)}{\arcsin(2x-3)}}$$

(*) STUDIO DEL SEGNO

$$N \geq 0 \quad \arcsin(x-2) \geq 0$$

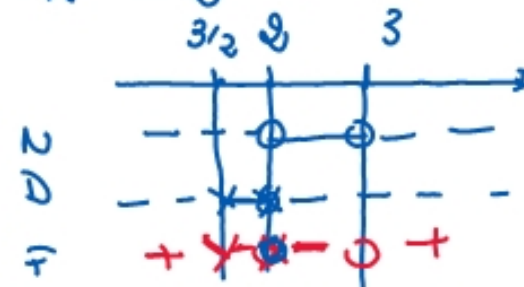
$$0 \leq x-2 \leq 1 \\ 2 \leq x \leq 3$$



$$D > 0 \quad \arcsin(2x-3) > 0$$

$$0 < 2x-3 \leq 1$$

$$\frac{3}{2} < x < 2$$



$$\sqrt{\frac{\arcsin(x-2)}{\arcsin(2x-3)}} \geq 0 \quad (*)$$

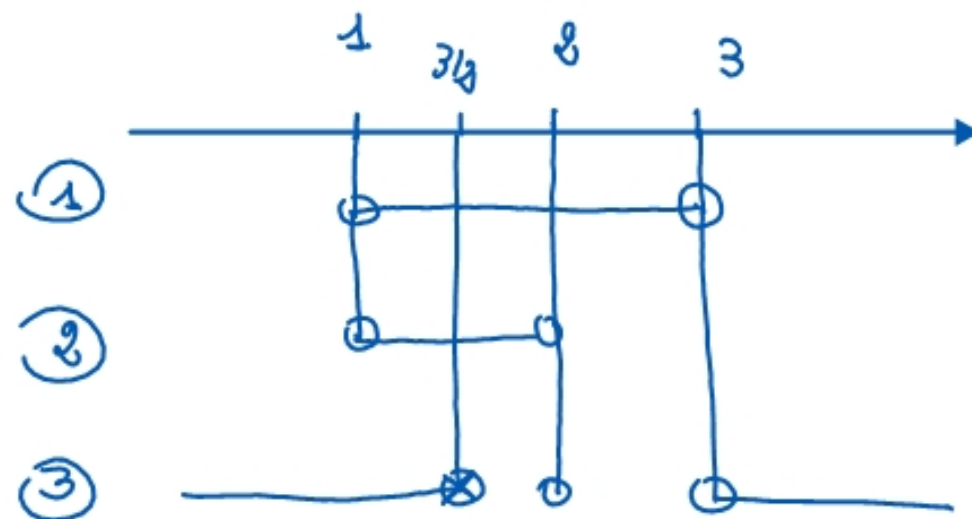
$$\left\{ \begin{array}{l} -1 \leq x-2 \leq 1 \\ -1 \leq 2x-3 \leq 1 \end{array} \right.$$

$$1 \leq x \leq 3$$

$$1 \leq x \leq 2$$

$$x < \frac{3}{2} \vee x > 3 \quad x=2$$

$$\begin{cases} 1 \leq x \leq 3 \\ 1 \leq x \leq 2 \\ x < \frac{3}{2} \cup x \geq 3 \cup x = 2 \end{cases}$$



DOMINIO

$$x \in \left[1, \frac{3}{2}\right) \cup \{2\}$$

$$y = \log_2 \left[\frac{\pi}{4} + \arctan \left(x^2 - \frac{5}{2}x \right) \right]$$

$$\frac{\pi}{4} + \arctan \left(x^2 - \frac{5}{2}x \right) > 0$$

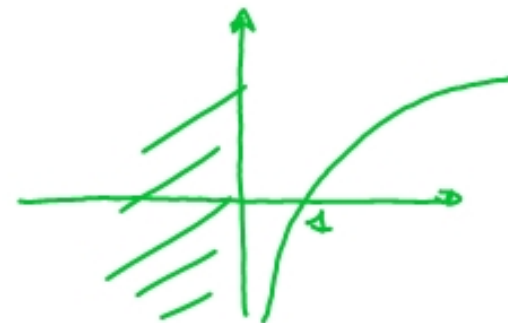
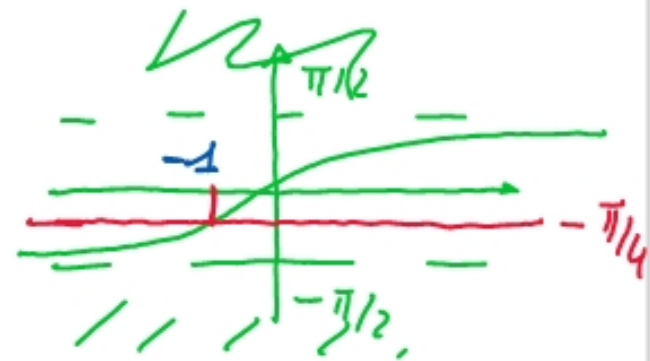
$$\arctan \left(x^2 - \frac{5}{2}x \right) > -\frac{\pi}{4}$$

$$x^2 - \frac{5}{2}x > -1$$

$$2x^2 - 5x + 2 > 0$$

$$x < \frac{1}{2} \cup x > 2$$

dominio: $\left] -\infty, \frac{1}{2} \right[\cup \left] 2, +\infty \right[$



$$x_{1,2} = \frac{5 \pm \sqrt{25-16}}{4} = \frac{5 \pm 3}{4} =$$

$$= \begin{cases} 2 \\ 1/2 \end{cases}$$

$$y = \sqrt{1 - |e^{2x} - 1|}$$

$$\sqrt{}: 1 - |e^{2x} - 1| \geq 0$$

$$|e^{2x} - 1| \leq 1$$

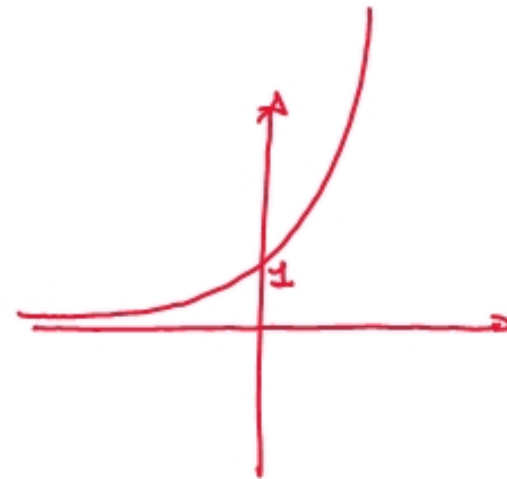
$$-1 \leq e^{2x} - 1 \leq 1$$

$$0 \leq e^{2x} \leq 2$$

$$\log_e e^{2x} \leq \log_e 2$$

$$2x \cdot \log_e e \leq \log_e 2$$

$$x \leq \frac{1}{2} \log_e 2 = \log_e 2^{\frac{1}{2}} = \log_e \sqrt{2}$$



$$y = \begin{cases} -x - \pi & x < -2\pi \\ \operatorname{sech} x & -2\pi \leq x \leq -\pi \\ \operatorname{sech} x & -\pi < x < -1 \\ \operatorname{arcsech} x & -1 \leq x \leq 1 \\ \operatorname{arctg} x & x > 1 \end{cases}$$

$$y = |x^2 - 5x + 6| + |x - 3| = \left\{ \right.$$