$9^x - 6 \cdot 3^x - 27 < 0$

$3^{2x} - 6 \cdot 3^x - 27 < 0$ $y = 3^x$
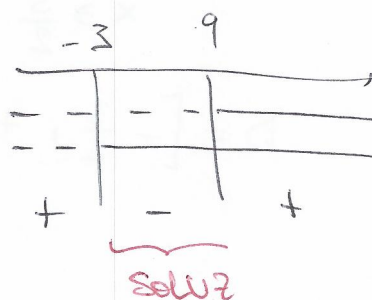
$y^2 - 6y - 27 < 0$

$y = 9$ $y = -3$

$(y-9)(y+3) < 0$

$1° \begin{cases} > 0 \end{cases}$ $y - 9 > 0$ $\rightarrow$ $y > 9$

$2° \begin{cases} > 0 \end{cases}$ $y > -3$

soluz

$-3 < y < 9$

$-3 < 3^x < 3^2$

doppia disequazione: equivale ad un sistema di disequaz.

$\begin{cases} 3^x > -3 \quad \forall x \\ 3^x < 3^2 \quad \rightarrow \quad x < 2 \end{cases}$

Soluz : $\boxed{x < 2}$

$S = (-\infty, 2)$

$\dfrac{2}{5} < \left(\dfrac{2}{5}\right)^x < \dfrac{25}{4}$ mi riconduco alla stessa base

$\left(\dfrac{2}{5}\right)^1 < \left(\dfrac{2}{5}\right)^x < \left(\dfrac{2}{5}\right)^{-2}$ base < 1

$1 > x > -2$ $\rightarrow$ $-2 < x < 1$

a) $y = \sqrt{9^x - 27}$
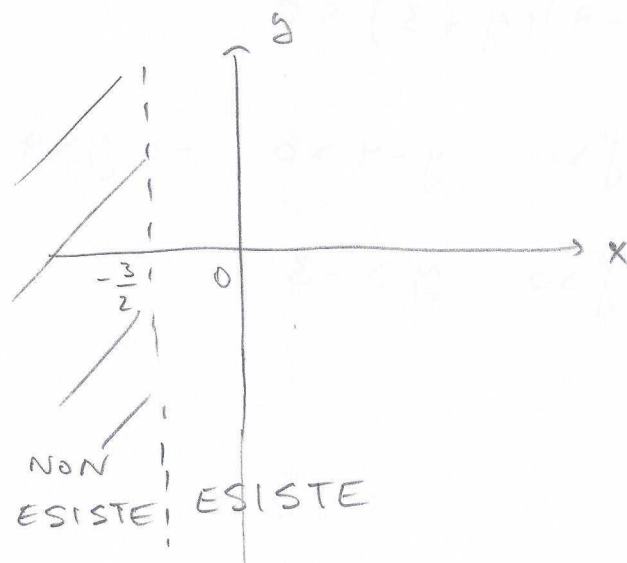
Dominio:

$$9^x - 27 \geq 0$$

$$9^x \geq 27$$

$$3^{2x} \geq 3^3$$

$$2x \geq 3$$

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

$$D = \left[-\frac{3}{2}, +\infty \right)$$

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b) $y = \sqrt{2^{x+2} + 2^x - 20}$

$$2^{x+2} + 2^x - 20 \geq 0$$

$$2^2 \cdot 2^x + 2^x - 20 \geq 0$$

$$4y + y - 20 \geq 0$$

$$5y - 20 \geq 0$$

$$y - 4 \geq 0$$

$$y \geq 4$$

$$2^x \geq 2^2$$

$$\boxed{x \geq 2}$$ $D = [2, +\infty)$

NON ESISTE | ESISTE