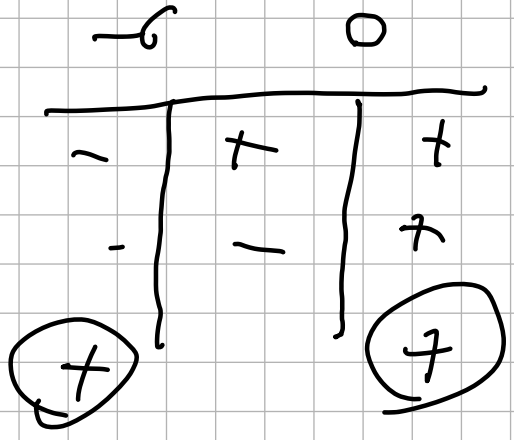
1) $y = 4 - \dfrac{x+2}{1-x^2}$ $\quad$ $\mathrm{DOM} = \mathbb{R} \setminus \{1\}$

2) $y = \sqrt{6x+x^2}$

$6x + x^2 \geq 0 \Rightarrow x(6+x) \Rightarrow$

$x \geq 0 \qquad x \geq -6$



$\mathrm{DOM} = (-\infty, -6] \cup [0, +\infty)$

3) $y = \sqrt[3]{\dfrac{64+x^3}{x^2}}$

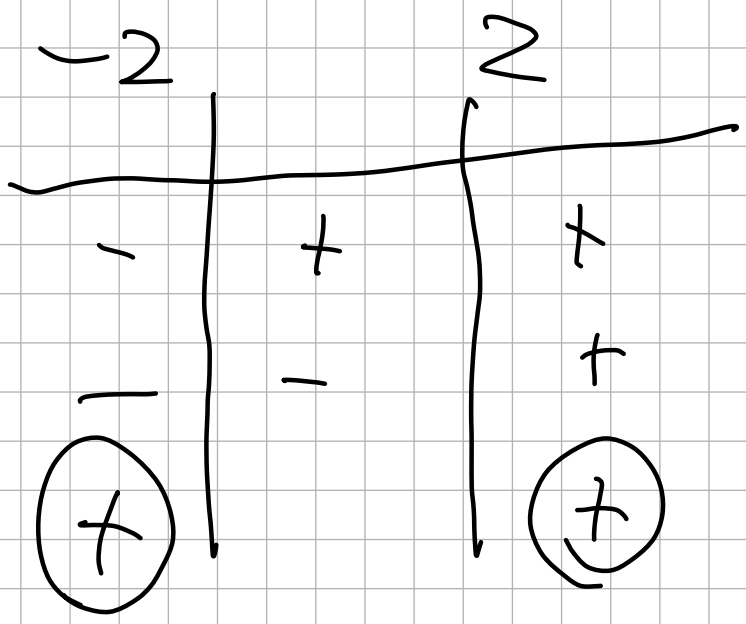
CI RIMANE SEMPRE RADICE E DUNQUE QUINDI NESSUNA CONDIZIONE DA PORRE.

QUINDI, IL DOMINIO DEVE ESSERE $R - \{0\}$

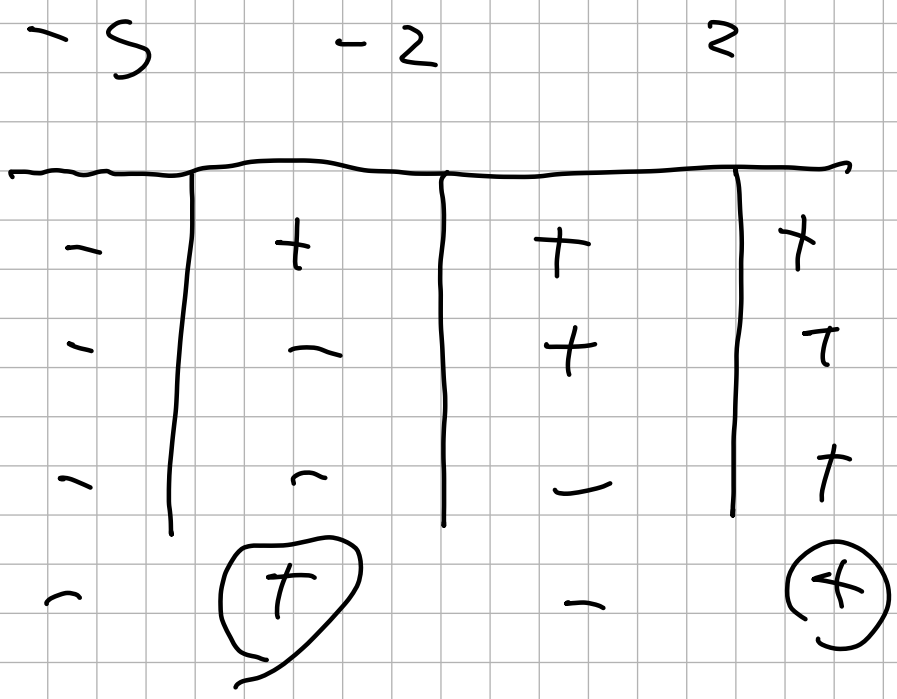
a) $y = \ln\left(\frac{x^2 - 4}{8 + x}\right)$

$x^2 > 4 \Rightarrow x > \pm 2$

$x > -8$



$(-8, 2) \cup (2, +\infty)$



$(-5, -2) \cup (2, +\infty)$

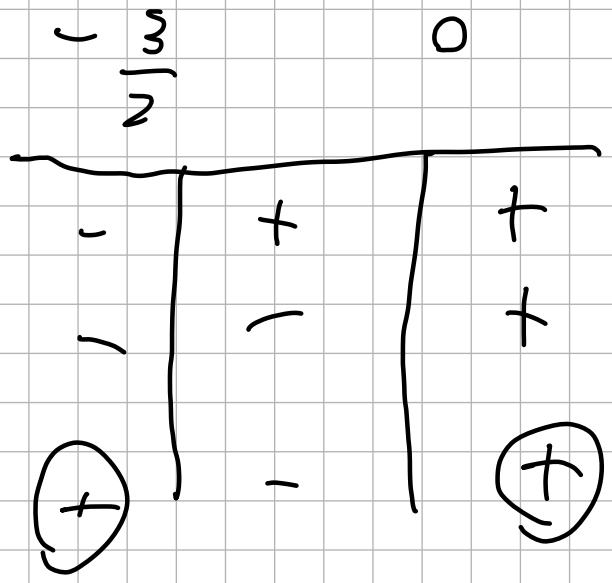
5) $y = 2^{\sqrt{3x + 2x^2}}$

$3x + 2x^2 \geq 0$

$x(3 + 2x)$

$x \geq 0$

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



$$\left(-\infty, -\frac{3}{2}\right] \cup [0, +\infty)$$

6) $y = (3x-2)^{\sqrt{5}}$

$$3x - 2 \geq 0 \Longrightarrow \frac{3x}{3} \geq \frac{2}{3}$$

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

7) $y = \sqrt{|x^2 - 25|}$ IN QUESTO CASO IL DOMINIO VALE $\mathbb{R}$ IN QUANTO AVENDO IL MODULO SOTTO RADICE CHE È SEMPRE ≥ 0

8) $y = \ln|x^2 - 2x|$

IL MODULO È > 0 MA NOI CI INTERESSA CHE SIA ANCHE $\neq 0$ AVENDO IL LOGARITMO

QUINDI $x(x-2)$

$x \neq 0 \qquad x \neq 2$

$\text{Dom} = (-\infty, 0) \cup (0,2) \cup (2, +\infty)$

9) $y = 3 + \dfrac{7x+2}{3-x}$ $\qquad \text{Dom} = \mathbb{R} \setminus \{3\}$

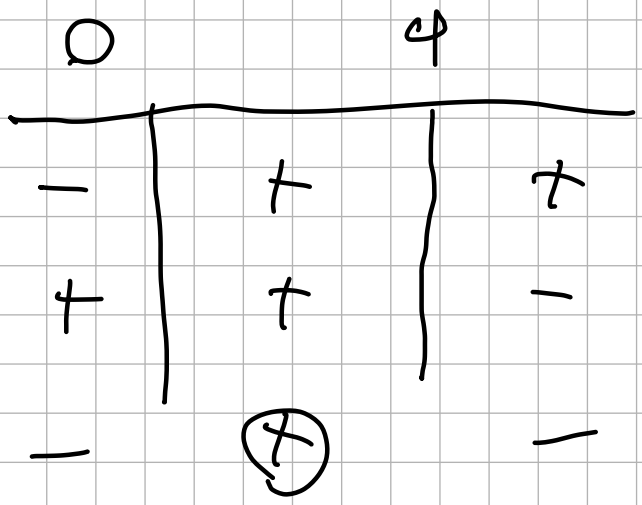
10) $y = x^2 - \dfrac{3x}{x^2+2} + \dfrac{5}{x-1}$ $\qquad \text{Dom} = \mathbb{R} \setminus \{1\}$

11) $y = \sqrt{4x - x^2}$

$4x - x^2 \geq 0$

$x(4-x) \qquad x \geq 0$

$-x \geq -4 \Rightarrow x \leq 4$



$Dom = [0, 4]$

12) $y = \sqrt[5]{\frac{6+x}{x}}$ $\quad Dom = \mathbb{R} \setminus \{0\}$

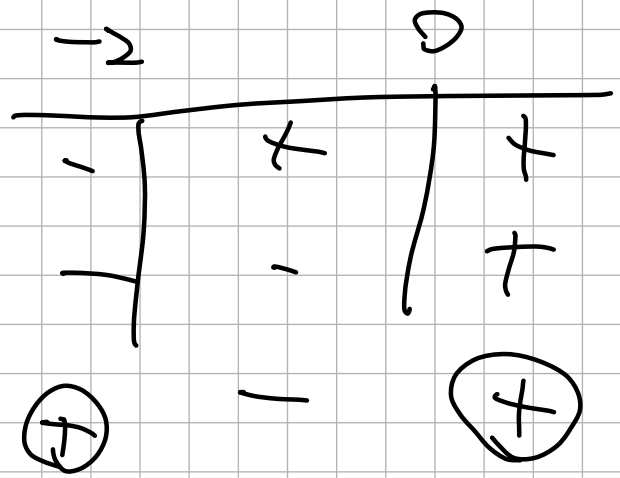
13) $y = \frac{3-x}{\sqrt{2x+x^2}}$

$2x+x^2 \geq 0$ MAYOR CERO > RACIONAL

SI TIENE AL DENOMINADOR:

$x(2+x)$

$x > 0 \quad x > -2$

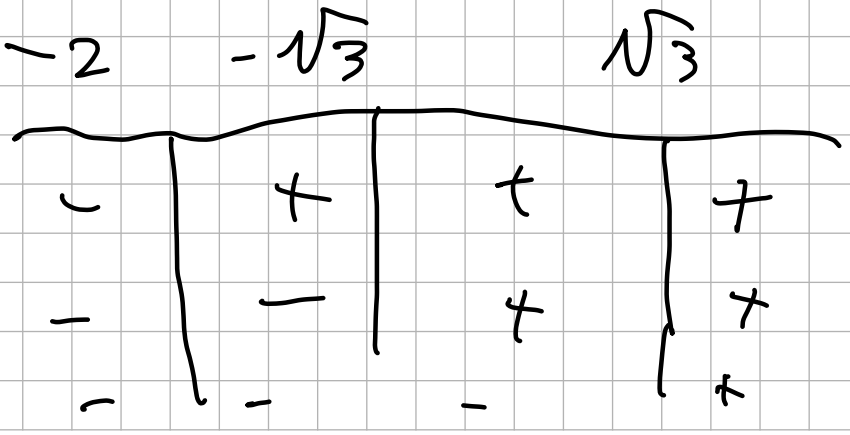


$(-\infty, 2) \cup (0, +\infty]$

14) $y = 2x - \dfrac{\sqrt{x^2-3}}{\sqrt{2+x}}$

$x^2 - 3 \geq 0 \Rightarrow x \geq \pm\sqrt{3}$

$2 + x > 0 \Rightarrow x > -2$



$$- \quad (t) \quad - \quad +$$

$$(-2, -\sqrt{3}] \cup [\sqrt{3}, +\infty)$$

25) $y = \ln(3 + x + x^2)$

$3 + x + x^2 > 0 \qquad Dom = \mathbb{R}$

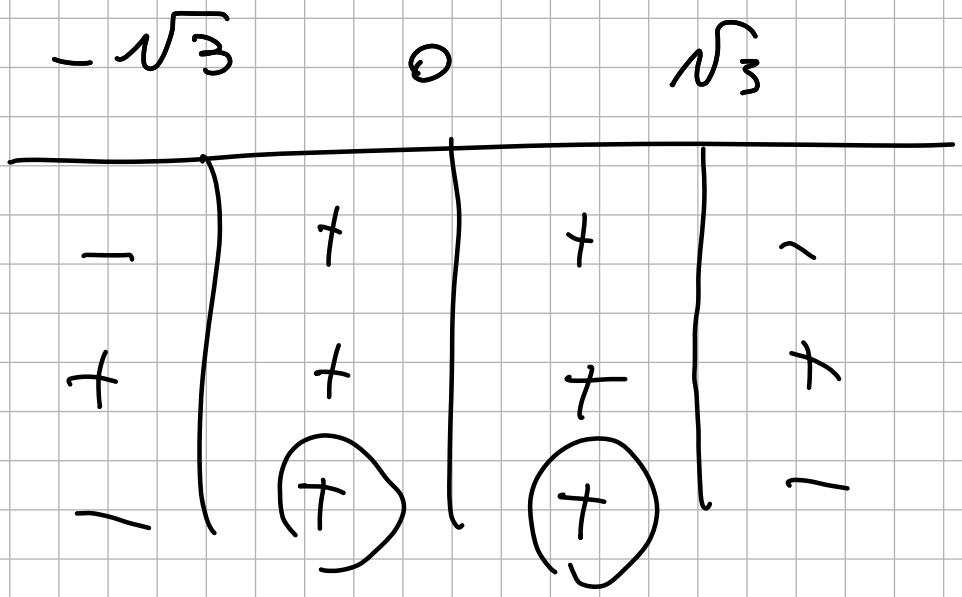
26) $y = \ln\left(\frac{x^2}{3 - x^2}\right)$

$x^2 > 0 \qquad$ SEMPRE

$-x^2 > -3 \Rightarrow x^2 < 3 \Rightarrow x < \pm\sqrt{3}$

DISEQUAZIONE $\qquad x_1 < x < x_2$

$x_1 = -\sqrt{3} \qquad x_2 = \sqrt{3}$



$(-\sqrt{3}, 0) \cup (0, \sqrt{3})$

17) $y = \log_{1/2}\left(\frac{1}{x} + x\right)$

$\frac{1}{x} + x > 0 \Rightarrow \text{dom} = (0, +\infty)$

16) $\dfrac{\sqrt[3]{x+1}}{\log_3(7-x)}$

$7 - x > 0 \Rightarrow x < 7$

$7 - x \neq 1 \Rightarrow x \neq 6$

$$Dom = (-\infty, 6) \cup (6, 7)$$

19) $y = \log_2 |x^2 - 25|$

$$x^2 - 25 \neq 0 \Rightarrow x \neq \pm 5$$

$$Dom = \mathbb{R} \setminus \{\pm 5\}$$ oppure:

$$D : (-\infty, -5) \cup (-5, 5) \cup (5, +\infty)$$

20) $y = \ln\left(x - \sqrt{4+x}\right)$

$$x - \sqrt{4+x} > 0$$

$$x > \sqrt{4+x}$$

$$\begin{cases} x > 0 \\ 4 + x \geq 0 \\ 4 + x < x^2 \end{cases} \Rightarrow \begin{cases} x > 0 \\ x \geq -4 \\ x < \frac{1 - \sqrt{17}}{2} \vee x > \frac{1 + \sqrt{17}}{2} \end{cases}$$

$$D = \left(\frac{1+\sqrt{17}}{2}, +\infty \right)$$

21) $y = 4^{\sqrt{3+x}}$

$3+x \geq 0 \Rightarrow x \geq -3$

$[-3, +\infty)$

22) $y = (1+x)^{-\sqrt{3}}$

$1+x > 0 \Rightarrow x > -1$

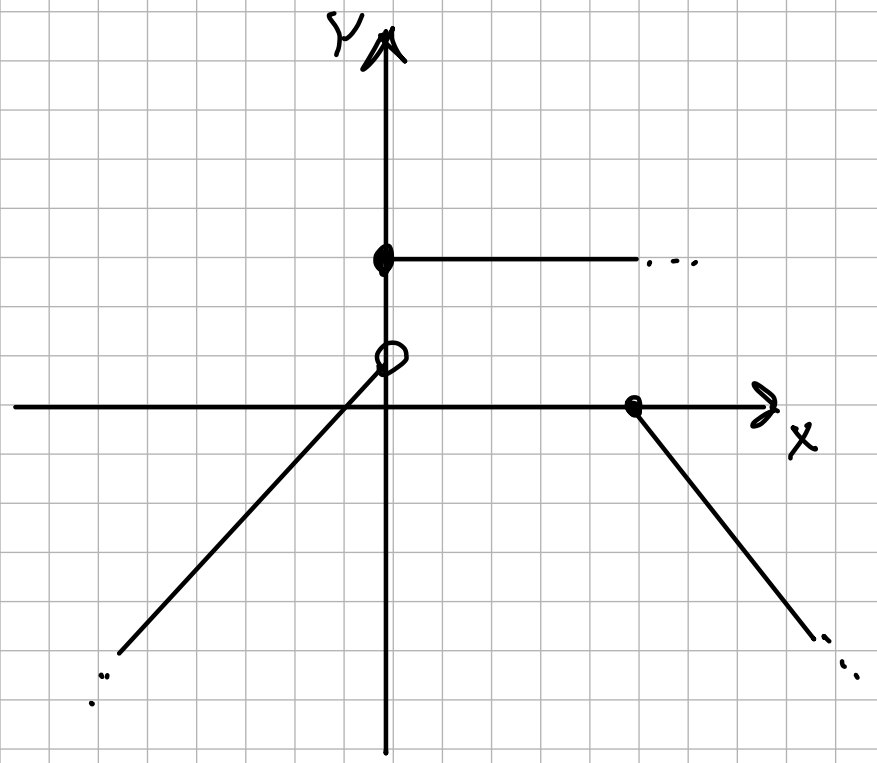
$D = (-1, +\infty)$

23) $y = \sqrt{\log_4 (2x-7+x^2)}$

$2x-7+x^2 \geq 1 \Rightarrow x^2+2x-8 \geq 0$

$x \leq -4 \vee x \geq 2 \qquad D = (-\infty, -4] \cup [2, +\infty)$

24) $y = \begin{cases} 1+x & x < 0 \\ 2 & 0 \le x < 3 \\ 3-x & x \ge 3 \end{cases}$



$Dom = \mathbb{R}$ $\quad$ $Im = (-\infty, 1) \cup \{2\}$