

DIVIDUA E CLASSIFICA I PUNTI DI DISCONTINUITA' (5)

a) $f(x) = \begin{cases} 2x^2 - 1 & x \leq 1 \\ \frac{1}{x-4} & \text{se } x > 1 \end{cases}$

b) $f(x) = \begin{cases} \frac{1}{4^{-x} - 2} & -1 \leq x \leq 0 \\ \frac{\ln(6x+1)}{4x} & x > 0 \end{cases}$

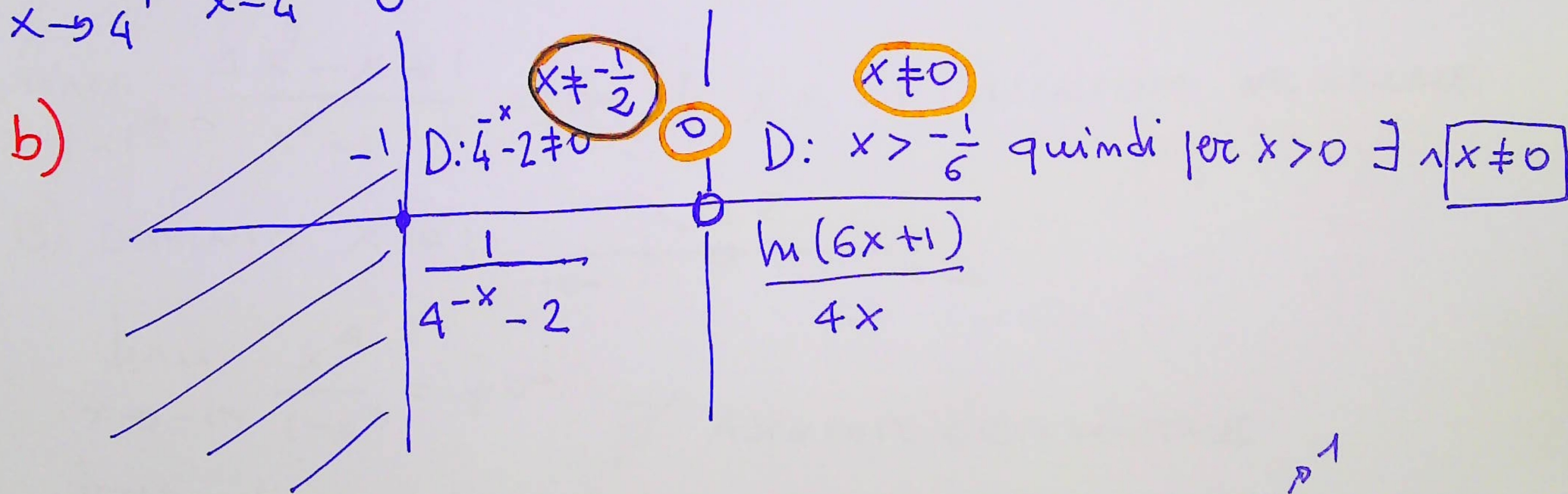
a) $\frac{D: \mathbb{R}}{2x^2 - 1} \quad \bigg| \quad \frac{D: \mathbb{R} - \{4\}}{\frac{1}{x-4}}$

$\lim_{x \rightarrow 1^-} 2x^2 - 1 = 2 - 1 = 1$

$1 \neq -\frac{1}{3} \quad X=1 \text{ DISC. I}^a \text{ SPECIE}$

$\lim_{x \rightarrow 1^+} \frac{1}{x-4} = -\frac{1}{3}$

$\lim_{x \rightarrow 4^+} \frac{1}{x-4} = \frac{1}{0} = \infty \quad X=4 \text{ DISC. II}^a \text{ SPECIE}$



$\lim_{x \rightarrow 0^+} \frac{\ln(6x+1)}{4x} = \frac{0}{0} \text{ (LIM. NOTEVOLE)} = \lim_{x \rightarrow 0^+} \frac{\ln(1+6x) \cdot \frac{6}{4}}{4x \cdot \frac{6}{4}} = \frac{3}{2}$

$\lim_{x \rightarrow 0^-} \frac{1}{4^{-x} - 2} = \frac{1}{4^0 - 2} = \frac{1}{-1} = -1$

$-1 \neq \frac{3}{2} \quad X=0 \text{ DISC. I}^a \text{ SPECIE}$

$\lim_{x \rightarrow -\frac{1}{2}^+} \frac{1}{4^{1/2} - 2} = \frac{1}{\sqrt{4} - 2} = \frac{1}{0} = \infty$

$X = -\frac{1}{2} \text{ DISCONT. II}^a \text{ SPECIE}$