$$\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$$

$$\sum_{k=0}^{n-1} q^k = \frac{1-q^n}{1-q}$$

ES

$$\sum_{k=5}^{10}(3+2k) = \sum_{k=5}^{10} 3 + 2\sum_{k=5}^{10} k = 3\cdot 6 + 2\left(\sum_{k=1}^{10} k - \sum_{k=1}^{4} k\right) = 3\cdot 6 + \left(\frac{10\cdot 11}{2} - \frac{4\cdot 5}{2}\right)$$

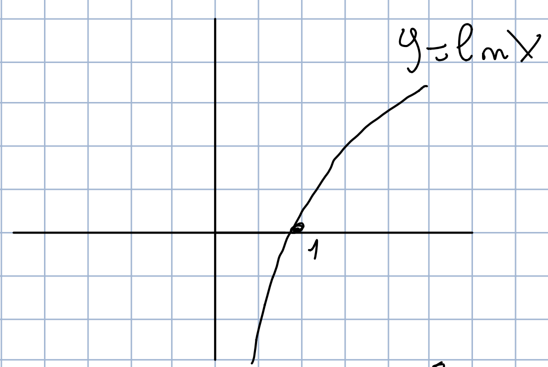
$$= 18 + 110 - 20 = 108$$

ES

$$C = \left\{ x \in \mathbb{R} \;\middle|\; \ln(x^2-1) \leq 0 \right\} =$$

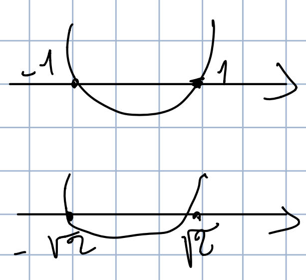
$$\ln(x^2-1) \leq 0 \quad (e^0 = 1)$$

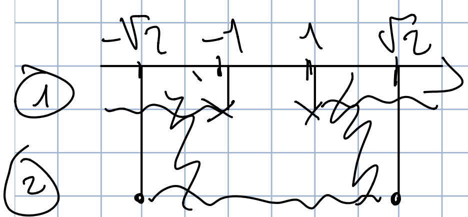
$$\begin{cases} ① \; x^2 - 1 > 0 \\ ② \; x^2 - 1 \leq 1 \end{cases}$$



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

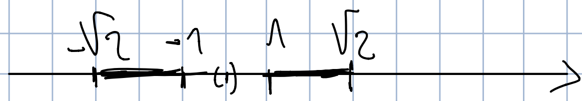
$$\begin{cases} ① \; x^2 > 1 \quad x^2 = \pm 1 \\ ② \; x^2 \leq 2 \quad x^2 = \pm 2 \end{cases}$$





$$C = [-\sqrt{2}; -1) \cup (1; \sqrt{2}]$$

• Punti di Accumulazione



$C' = [-\sqrt{2}, -1] \cup [1; \sqrt{2}]$

• Inf e sup

$\inf C = -\sqrt{2} = \min($

$\sup C = \sqrt{2} = \max($

• Non contiene punti isolati

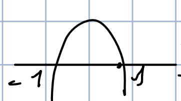
Determinare Df (Dominio)

A	B	C	D
$f(x)=\frac{\sqrt{1-x^2}}{\ln x}$	$f(x)=e^{\sqrt{\frac{x}{x-1}}}$	$f(x)=\frac{x^2+2}{\sqrt{x^2-x}}$	$f(x)=\ln\sqrt{x^2-4}$

A

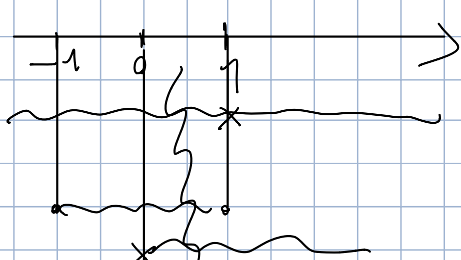
$f(x)=\frac{\sqrt{1-x^2}}{\ln x}$ C.E. $\ln x \neq 0 \quad x \neq 1$

N $\begin{cases} 1-x^2 \geq 0 \\ x > 0 \end{cases}$ D



$-1 \leq x \leq +1$

$x > 0$

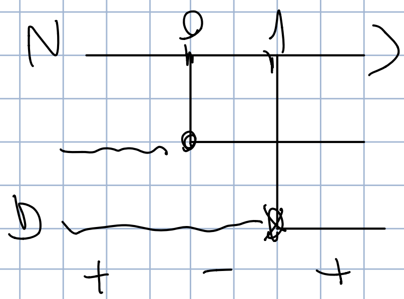


Df $(0;1)$

(B)

$f(x) = e^{\sqrt{\frac{x}{x-1}}}$

$\begin{cases} \frac{x}{x-1} \geq 0 \\ x-1 \neq 0 \end{cases}$



$D_f \ (-\infty, 0] \cup (1; +\infty)$

(C)

$f(x) = \frac{x^2+2}{\sqrt{x^2-x}}$

$\begin{cases} \sqrt{x^2-x} \neq 0 \\ x^2-x \geq 0 \end{cases} \xrightarrow{\text{si scrive!}} x^2-x > 0$

$D_f \ (-\infty, 0) \cup (1, \infty)$

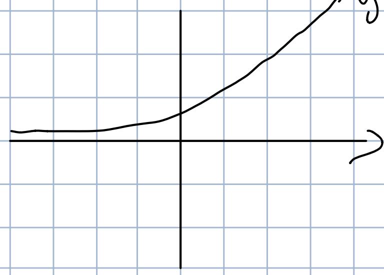
(D)

$f(x) = \ln\sqrt{x^2-4}$

$\begin{cases} \sqrt{x^2-4} > 0 \\ x^2-4 \geq 0 \end{cases} \rightarrow$ si scrive! $x^2-4>0$

• Verifiche di limiti

$$\lim_{x \to -\infty} e^x = 0$$



$\forall \varepsilon > 0 \; \exists x_\varepsilon \mid \forall x < x_\varepsilon \Rightarrow$

$\Rightarrow |f(x) - \ell| < \varepsilon$

$\ell - \varepsilon$