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ANALISI I

2018 - 2019

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A.01 26/09/2018

FUNZIONI DI UNA VARIABILE $\in \mathbb{R}$

$f(x) = x^2$ $\quad (f, A, B)$

f = RELAZIONE

A = DOMINIO } INSIEMI

B = CODOMINIO }

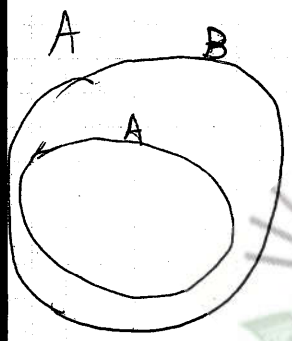
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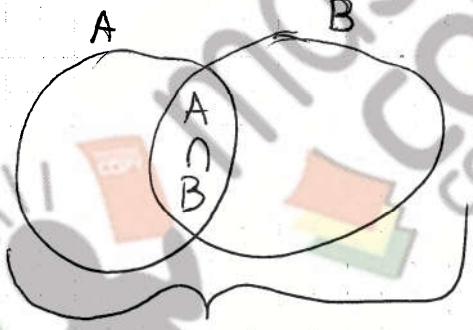
$A \subset B$ $\quad A \cup B$ $\quad A \cap B$

B CONTIENE

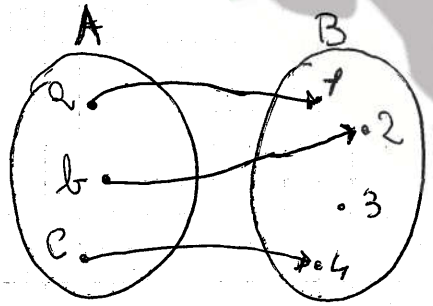
UNIONE

INTERSEZIONE





$A \cup B$

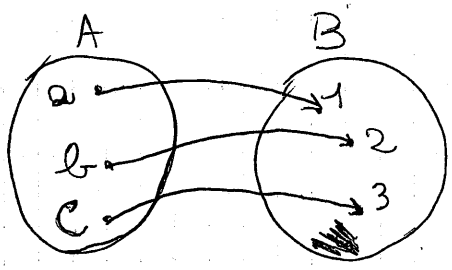


INIETTIVA

$\forall a_1, a_2 \in A \; ; \; a_1 \neq a_2 \Rightarrow f(a_1) \neq f(a_2)$

BIETTIVA

SURIETTIVA



$\forall b \in B \quad \exists a \in A : f(a) = b$

$Im(f) = B$

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A.02 24/09/2018

- INIETTIVA

$\forall a_1, a_2 \in A \quad a_1 \neq a_2 \Longrightarrow f(a_1) \neq f(a_2)$

- SURIETTIVA

$\text{Im } f = B \quad \forall b \in B \quad \exists a \in A : f(a) = b$

- BIETTIVA

$\forall b \in B \quad \exists! \, a \in A : f(a) = b$

- INVERSA

DATA f BIETTIVA $\exists \, g : B \to A$ g È L'INVERSA DI f

$g(f(a)) = a \quad g(b) = a \quad \forall a \in A, \, b \in B$

- STR CRESCENTE

$f : D \to \mathbb{R} \quad D \subseteq \mathbb{R}$ f È STR C.

SE $\forall x, y \in D \quad x < y \Longrightarrow f(x) < f(y)$

- CRESCENTE

$f : D \to \mathbb{R} \quad D \subseteq \mathbb{R}$ f È CRESCENTE

SE $\forall x, y \in D \quad x < y \Longrightarrow f(x) \leq f(y)$

- VALORE ASSOLUTO

FUNZIONE DEFINITA A TRATTI

$$|x| = \begin{cases} x & \forall x \geq 0 \\ -x & \forall x < 0 \end{cases} \quad x \in \mathbb{R}$$

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- STR DECRESCENTE

$f: D \to \mathbb{R}$ $D \subseteq \mathbb{R}$ f È STR D.

SE $\forall x, y \in D$ $x < y \Longrightarrow f(x) > f(y)$

- DECRESCENTE

$f: D \to \mathbb{R}$ $D \subseteq \mathbb{R}$ f È DECRESCENTE

SE $\forall x, y \in D$ $x < y \Longrightarrow f(x) \geq f(y)$

- PROPRIETÁ DEL VALORE ASSOLUTO

1) $|x| \geq 0$ $\forall x \in \mathbb{R}$

$|x| = 0 \iff x = 0$

2) $-|x| \leq x \leq |x|$ $\forall x \in \mathbb{R}$

$$\begin{cases} -x \leq x \leq x & x \geq 0 \\ & x < 0 \end{cases}$$

3) $|x \cdot y| = |x| \cdot |y|$

4) DISUGUAGLIANZA TRIANGOLARE

$|x + y| \leq |x| + |y|$ $\forall x, y \in \mathbb{R}$

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