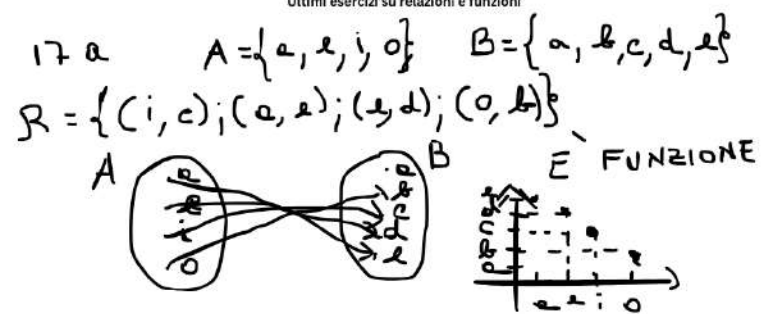
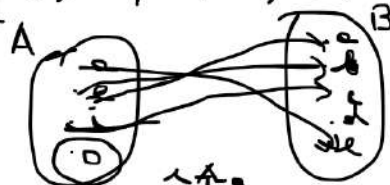


LEZIONE 8
Ultimi esercizi su relazioni e funzioni

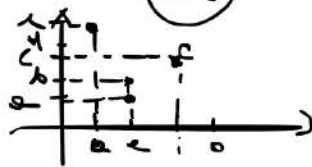


$$R = \{ (2, b); (2, e); (2, a); (1, e) \}$$



$$\forall x \in A \exists ! y \in B \mid x R y$$

NON È FUNZIONE!!



$$1.8 \quad A = \{m \mid m \in \mathbb{Z}, -2 \leq m \leq 2\}$$

$$B = \{m \mid m \in \mathbb{Z}, m \leq 4\}$$

$$R \subseteq A \times B$$

$$R = \{y = x^2\}$$

$$R = \{(a, b) \in A \times B \mid a \in A, b \in B\}$$

$$A \times B = ?$$

$$A = \{-2, -1, 0, 1, 2\}$$

$$B = \{-2, -1, 0, 1, 2, 3, 4\}$$

$$R = \{(-2, 4), (0, 0), (1, 1), (2, 4), (-1, 1)\}$$

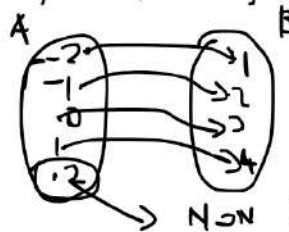


SI
UNA
FUNZIONE

$$R: "y = x + 3"$$

$$R = \{(-2, 1); (-1, 2); (0, 3); (1, 4)\}$$

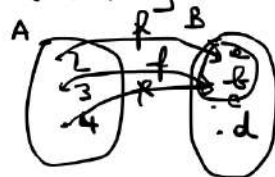
NON È
FUNZIONE



NON È GLEATO

19A $A = \{2, 3, 4\}$

$B = \{a, b, c, d\}$



$f: A \rightarrow B$

$a = f(2)$

$b = f(3)$

$b = f(4)$

$\text{Im } f = \{a, b\}$

INSIEME
DELLE IMMAGINI
DI f

$$y = f(x) = \frac{1}{3}x - 2$$

$$f: \mathbb{N} \rightarrow \mathbb{R} \quad \boxed{f^{-1}(x) = 6 + 3y}$$

$$f(0) = \frac{1}{3} \cdot 0 - 2 = -2 \in \mathbb{R}$$

$$f(2) = \frac{1}{3} \cdot 2 - 2 = \frac{2}{3} - 2 = \frac{2-6}{3} = -\frac{4}{3} \in \mathbb{R}$$

$$f(3) = \frac{1}{3} \cdot 3 - 2 = 3 - 2 = 1 \in \mathbb{R}$$

$$\begin{array}{|l} f(0) = -2 \\ f(2) = -\frac{4}{3} \\ f(3) = 1 \end{array}$$

$$f^{-1}(1) = ?$$

$$\boxed{f^{-1}(1) = 6 + 3 = 9}$$

$$f^{-1}(2) = ?$$

$$\boxed{f^{-1}(2) = 6 + 6 + 12 = 24}$$

$$y = \frac{1}{3}x - 2$$

$$3y = x - 6$$

$$-x + 6 = -3y \Rightarrow x - 6 = 3y$$