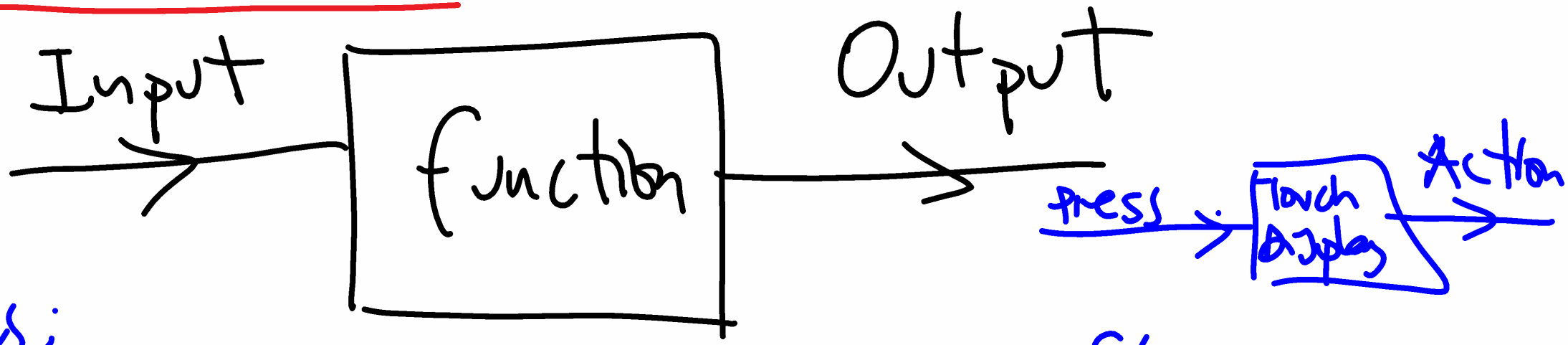
Question: What is a "Function"?

1) Thing that does something: Parabolas
2) A type of equation: Graphs, $a+7b=c$
3) Equation that contains an equal sign: $5+7x=3$, $1+1=7x$
4) Something that can be applied to something else
5) A Relationship between #s & variables

FUNCTION (Computer Science)

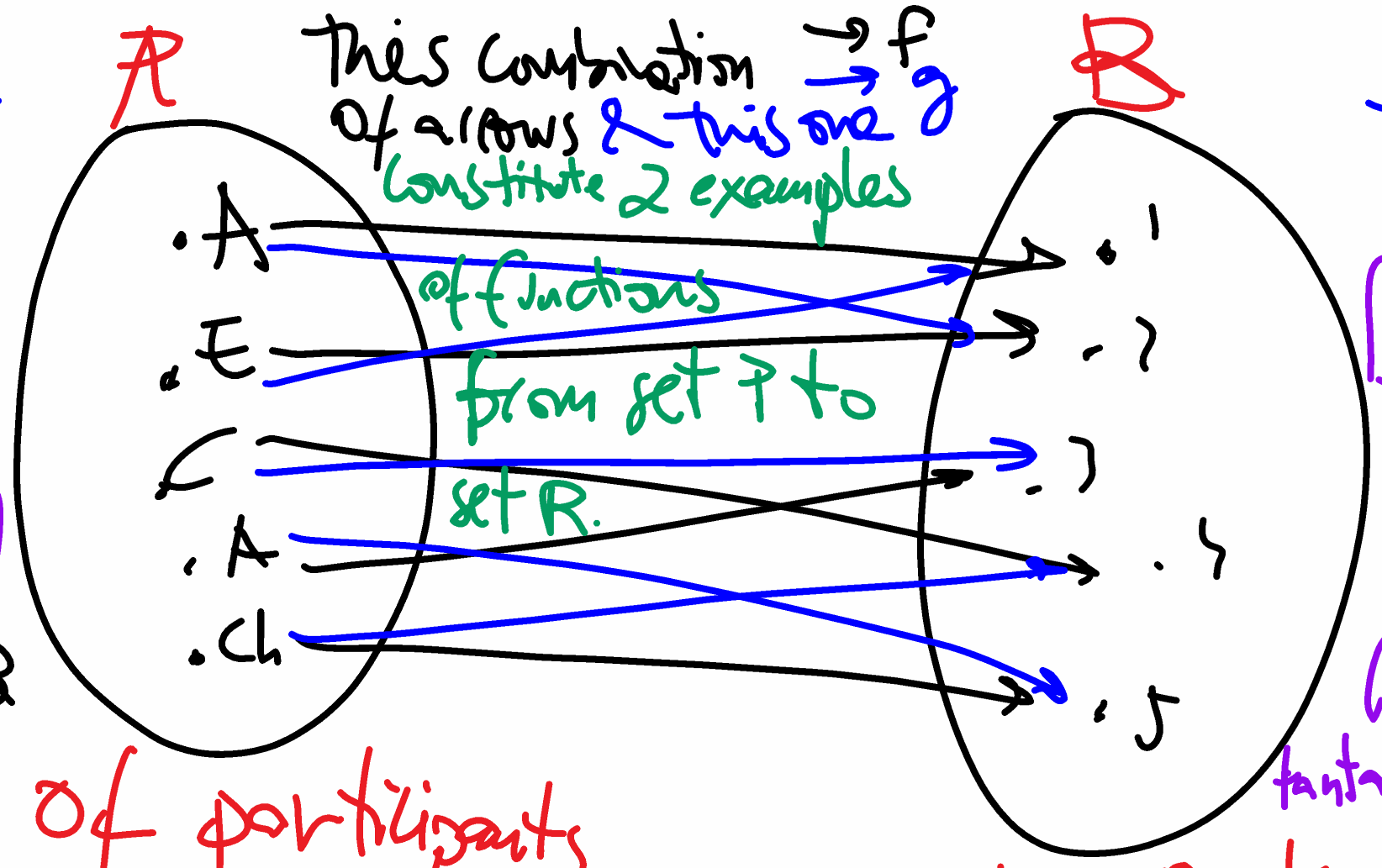
1)



Examples:

2)

→ is A possible MAPPING of set A on set B



→ is A different MAPPING of set A in set B

MAPPING is tantamount to a RELATION

Set of participants

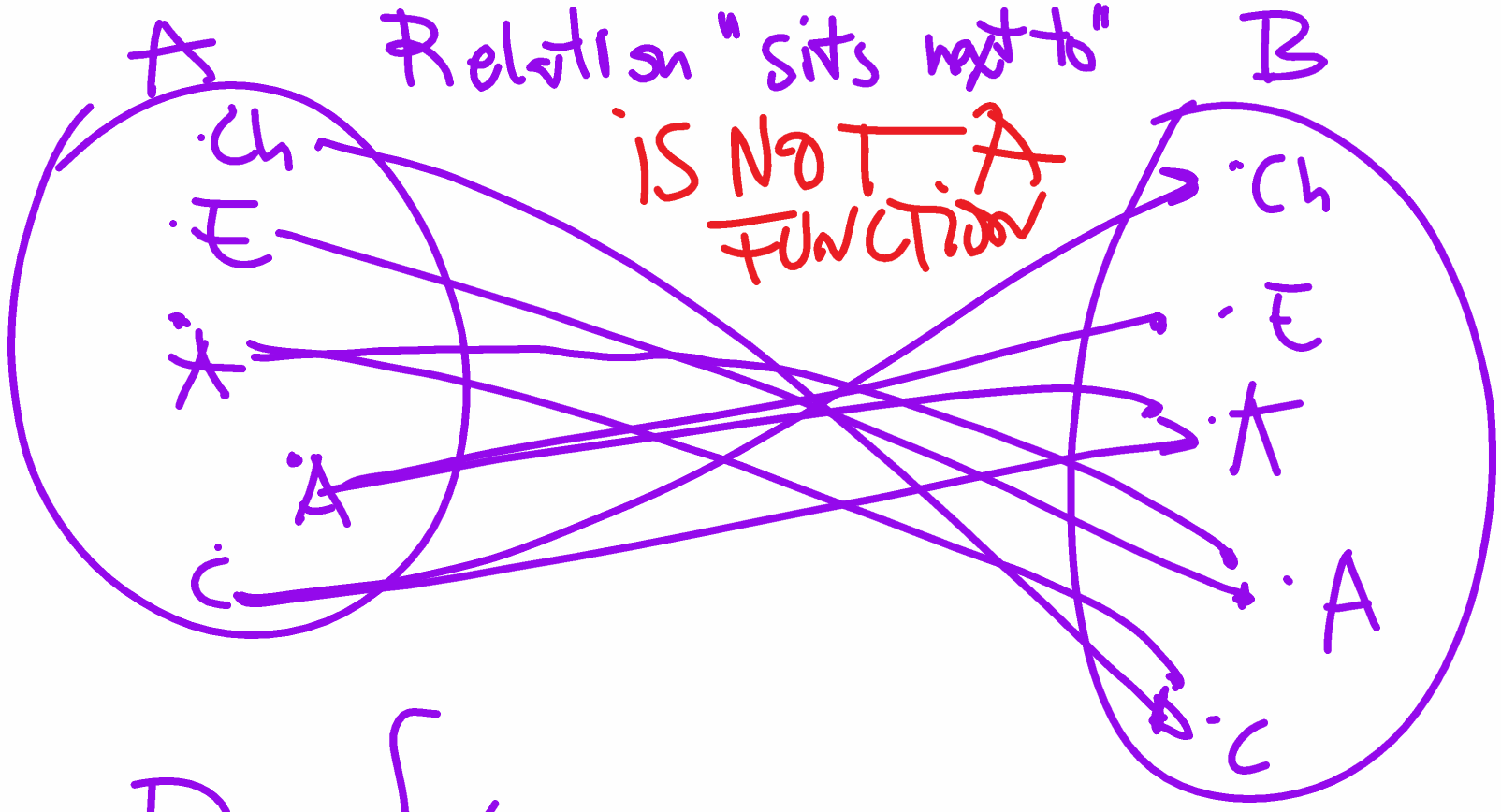
A is called the DOMAIN of f/g

B is called the RANGE

Set of Ranking positions

CODOMAIN

GRAPH:

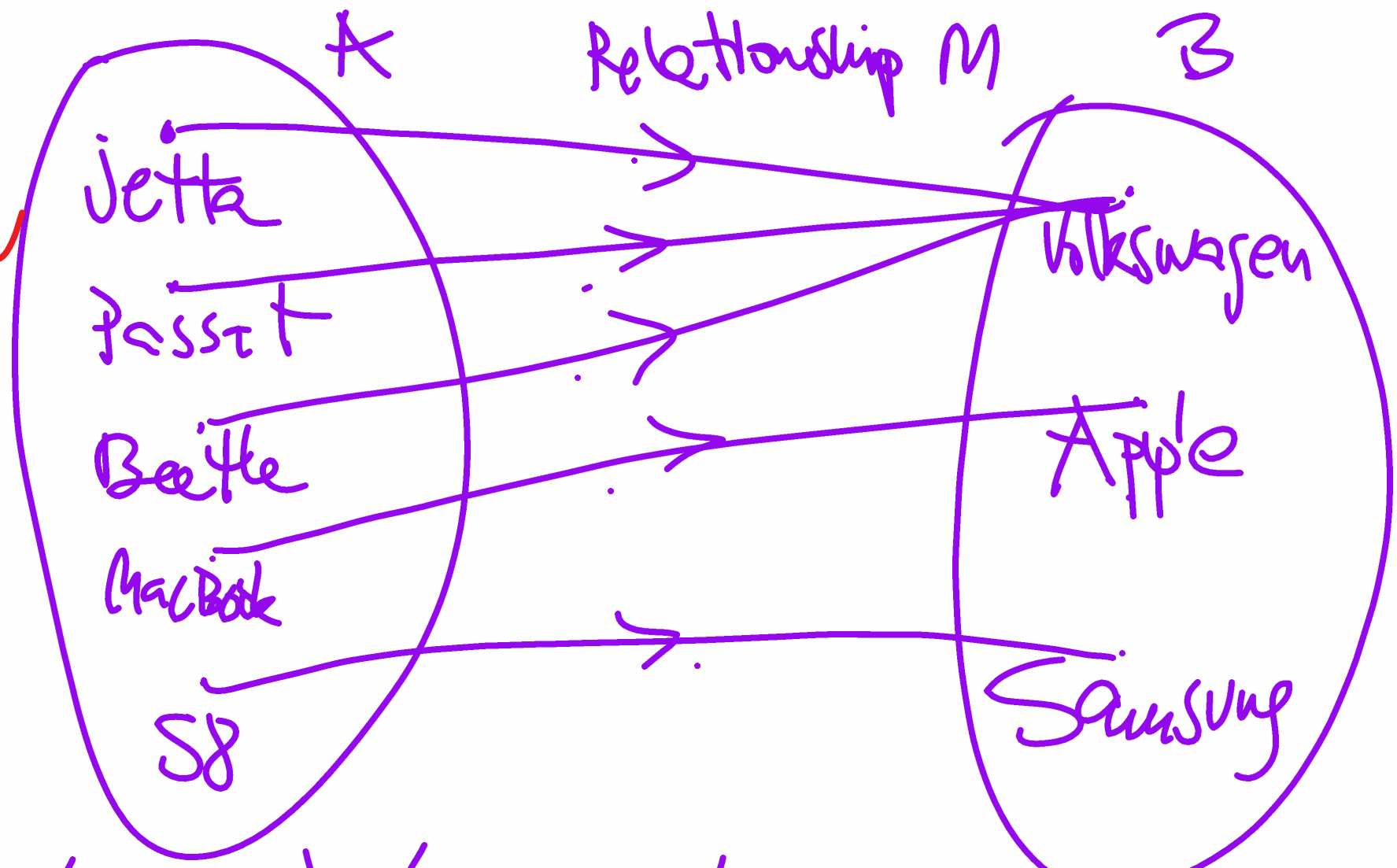


Formula:

$$R = \{(Ch, C), (E, A), (A, A), (A, C), (A, E), (A, A), (C, Ch), (C, A)\}$$

R → Name of our Relation

IS Relation & Is Function



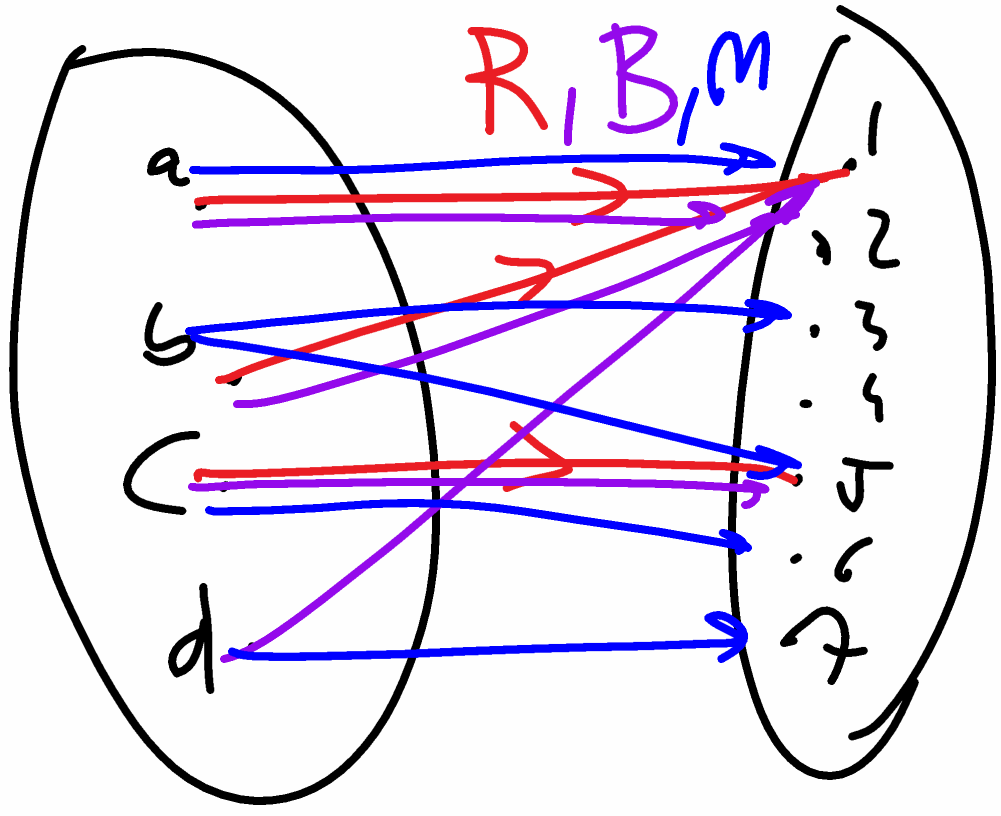
$M = \{(Jetta, V), (S8, S), (Passat, V), (MBook, Apple), (B, V)\}$

NOT ALL RELATION ARE

FUNCTIONS

BUT ALL FUNCTIONS

ARE RELATIONS



$M = \{(a,1), (b,3), (b,5), (c,6), (d,7)\}$

NOT FUNCTION

B is Function

$R = \{(a,1), (b,1), (c,5)\}$

NOT FUNCTION

$B = \{(a,1), (b,1), (c,5), (d,1)\}$

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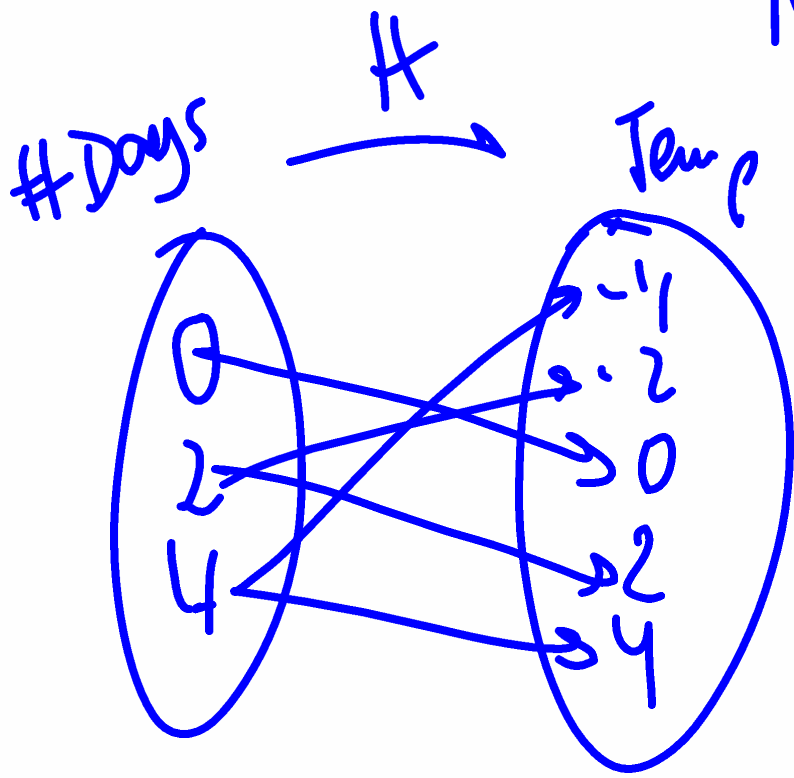
Relation A

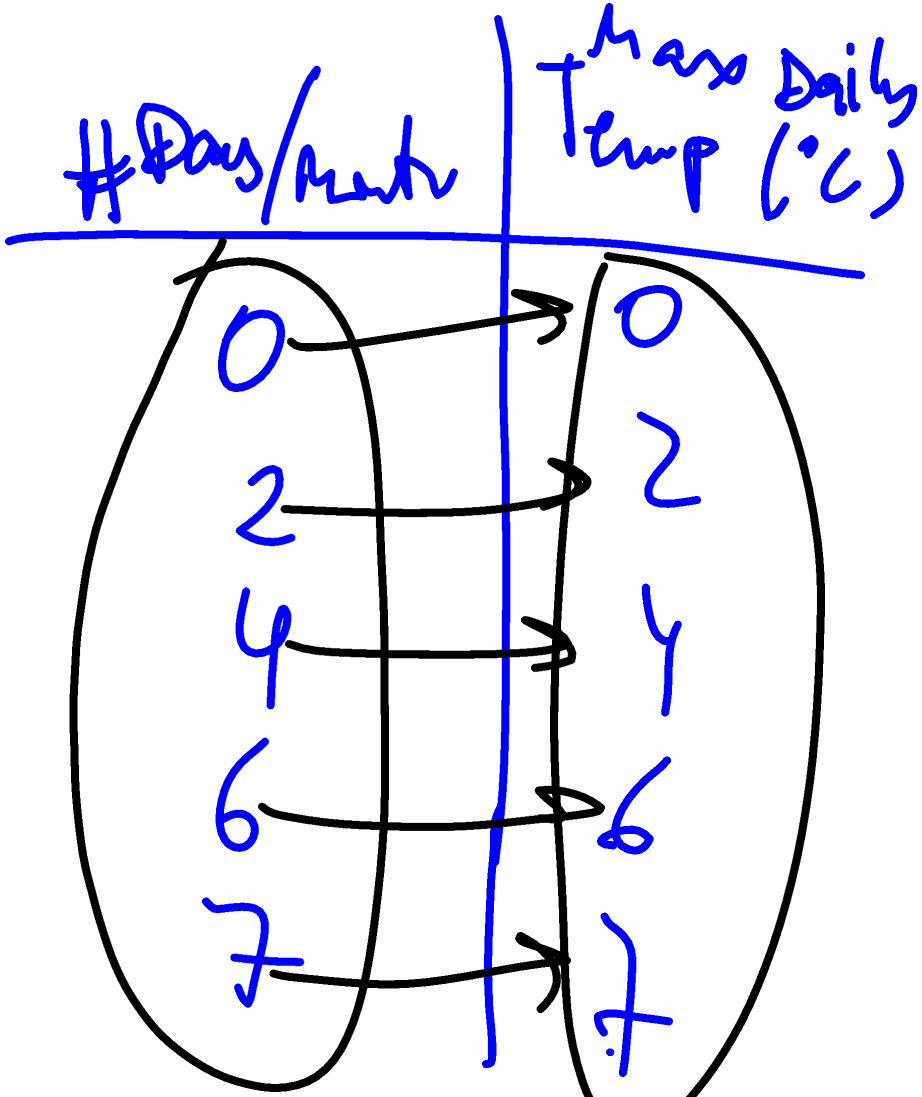
# day/month	Min Daily Temp (°C)
0	0
2	2
2	-2
4	-4
4	4



not function

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

Relation B



English.

Domain = {0, 2, 4, 6, 7}

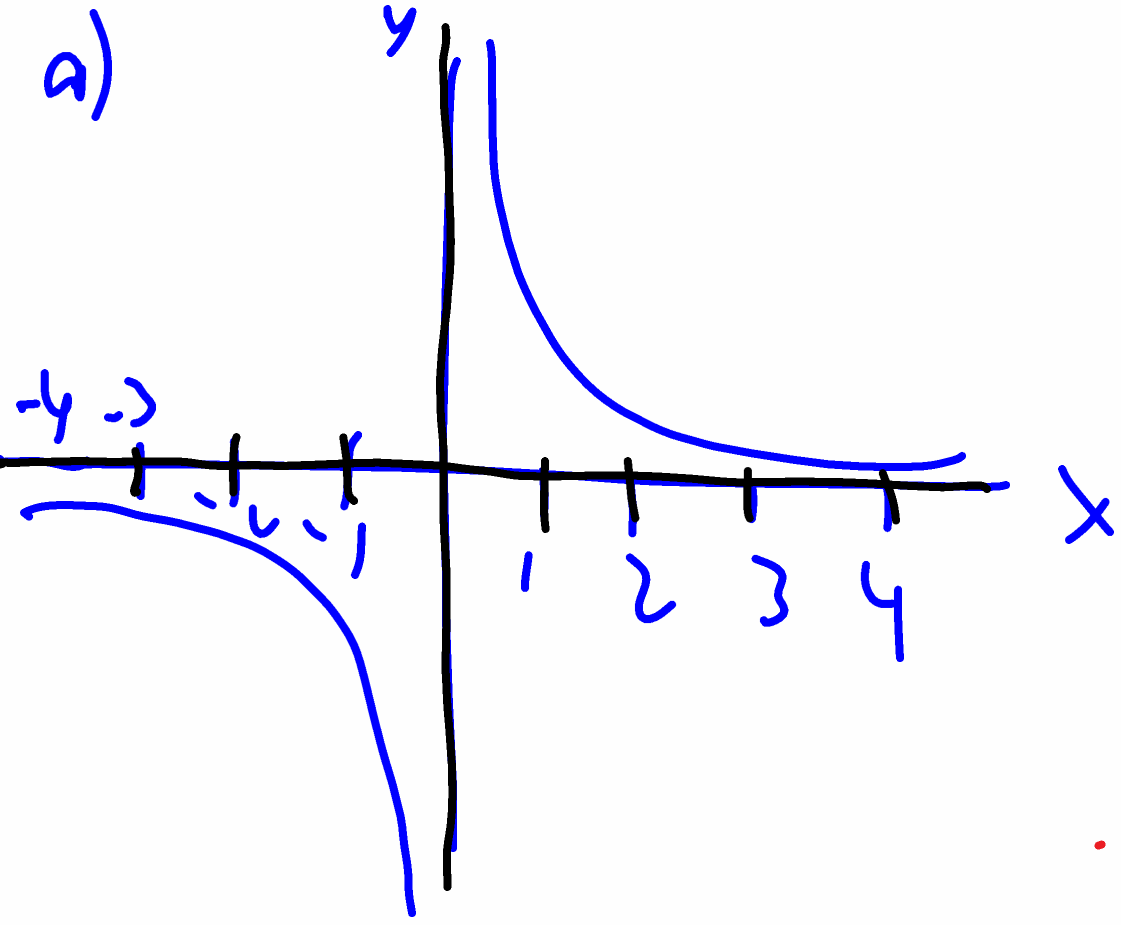
Range = {0, 2, 4, 6, 7}

This relation is a function because each element of the domain is the source of one & only one arrow onto Range

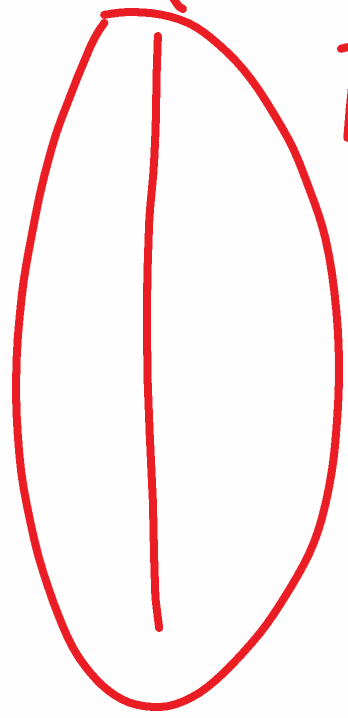
$$B = \{(0,0), (2,2), (4,4), (6,6), (7,7)\}$$

Determine for each Relation
Domain, range, function or not?

a)



Domain
x (all real #s)



$\mathbb{R}$ → set of Real #'s

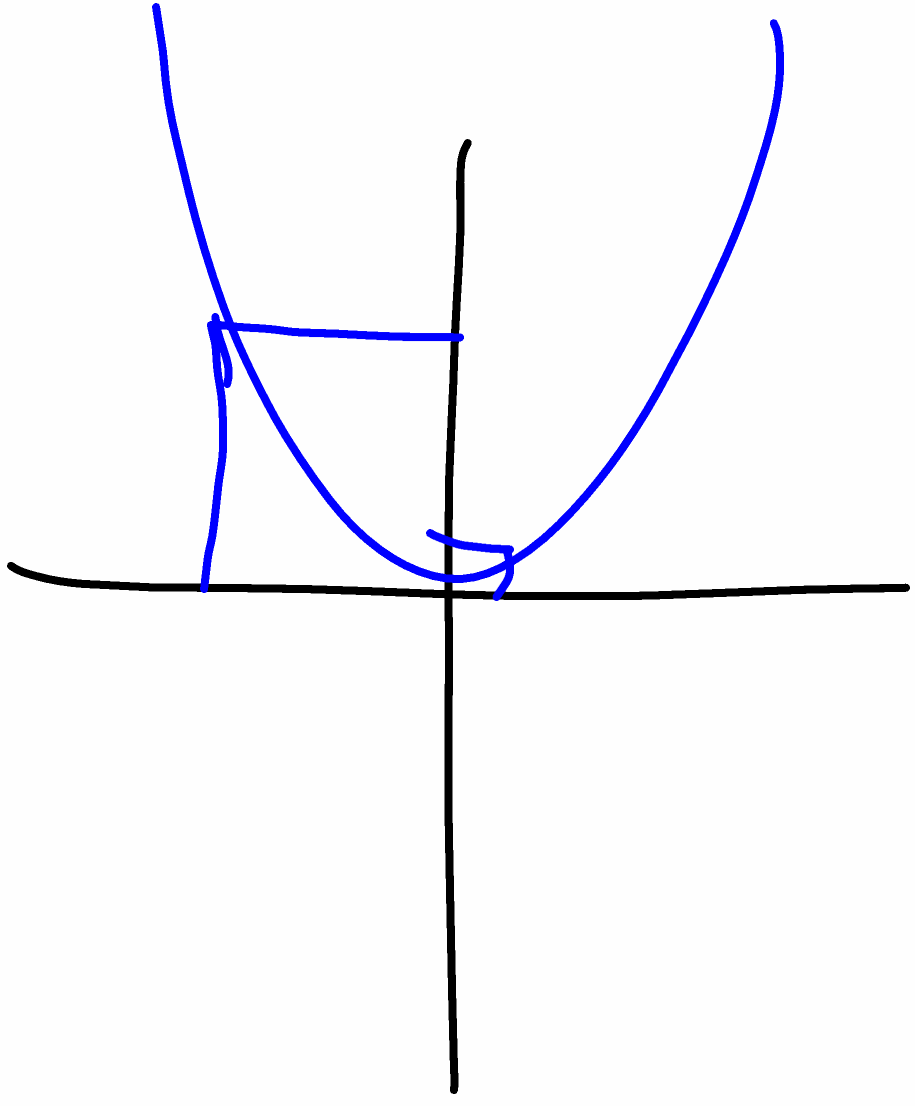
Domain $= \{ x \in \mathbb{R} \}$

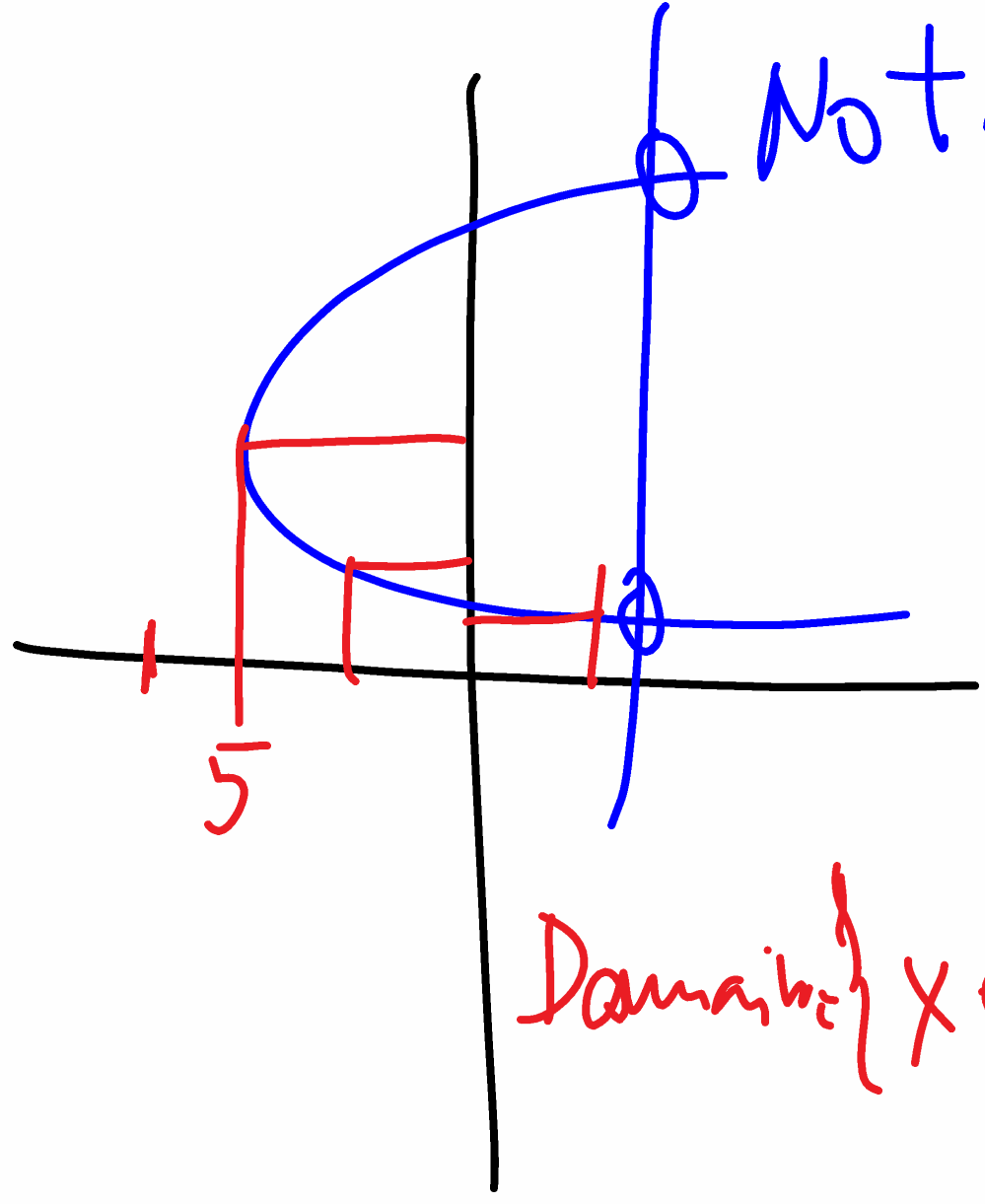
∈ → Belonging to

English

Any element x belonging to the set $\mathbb{R}$

Range $= \{ x \in \mathbb{R} \}$





Domain: $\{x \in \mathbb{R} / x \geq 5\}$