PROJECT WORK OF OPTIONAL MATHS

To: Roshan Thapa
[Department of Opt. Maths]

By: Anuj Sapkota
8 'Gallica'

Questions

1) Define ordered pair with some examples.

2) Take two non empty sets of no. on your own and find its cartesian product.

3) Represent the Cartesian product in ordered pair form, mapping diagram, table & graph.

4) Find the relation ~~between~~ of the above Cartesian product under your own specified condition.

5) Find the domain and range of the relation.

6) Represent the relation in ordered pair form, mapping diagram, table & graph.

7) Mention the type of above relation.

8) Mention the above relation is a function or not along with suitable reason.

NEXT

→ Representing A×B in table form,

1) Ordered pair

If the occurance of the elements is considered in a definite order, then a set with two elements is known as an ordered pair.

Examples:

(i) (4,6) = (5-1, 10-4) as 5-1 is 4 and 10-4 is 6.

(ii) (2,4) = (4-2, 6-2) as 4-2 is 2 and 6-2 is 4.

2) → Soln;

Here,

$A = \{2,4\}$ & $B = \{6,8\}$

Now,

$A \times B = \{2,4\} \times \{6,8\}$

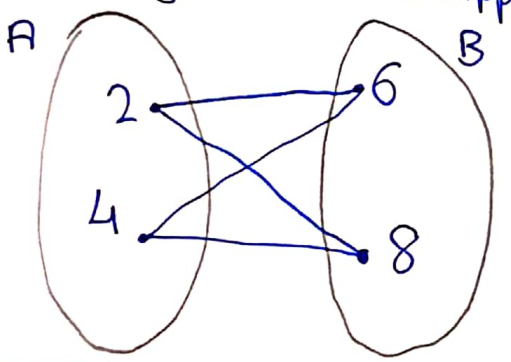
$= \{(2,6), (2,8), (4,6), (4,8)\}$

3.) → Representing A×B in ordered pair,

$A \times B = \{2,4\} \times \{6,8\}$

$= \{(2,6), (2,8), (4,6), (4,8)\}$

→ Representing A×B in mapping diagram,

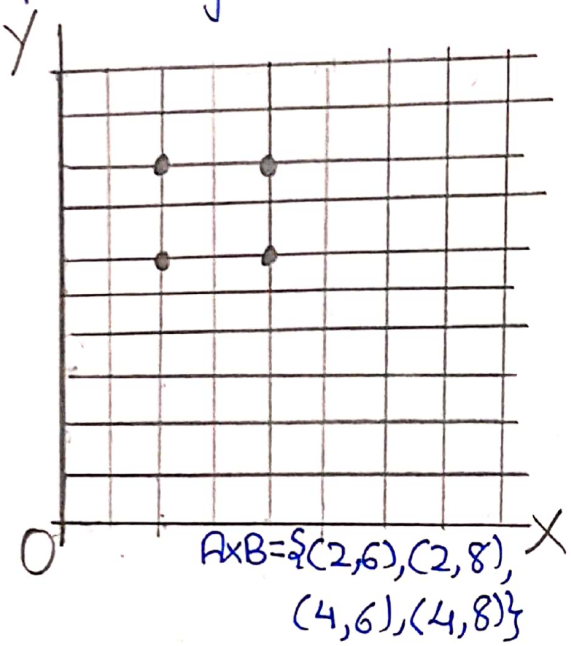


A×B

→ Representing A×B in table form,

A↓ \ B→	6	8
2	(2,6)	(2,8)
4	(4,6)	(4,8)

→ Representing A×B in graph,



A×B = {(2,6), (2,8), (4,6), (4,8)}

4.) → Soln,

Here,

R_1 = a relation from A to B such that $y > x$.

$\therefore R_1 = \{(2,6), (2,8), (4,6), (4,8)\}$

R_2 = a relation from A to B such that $2x = y$.

$\therefore R_2 = \{(4,8)\}$

5) → Soln,

Here,

i) $R_1 = \{(2,6), (2,8), (4,6), (4,8)\}$

Domain of $R_1 = \{2,4\}$

Range of $R_1 = \{6,8\}$

ii) $R_2 = \{(4,8)\}$

Domain of $R_2 = \{4\}$

Range of $R_2 = \{8\}$

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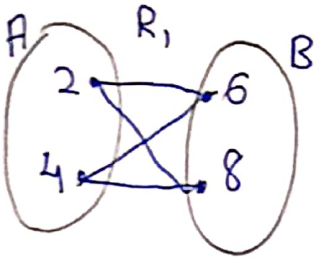
6) → Soln,

Here,

- Representing R_1 in ordered pair form,

$R_1 = \{(2,6), (2,8), (4,6), (4,8)\}$

- Representing R_1 in mapping diagram,



- Representing R_1 in table form,

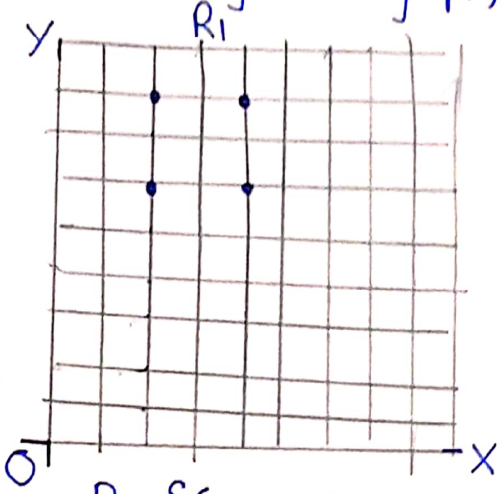
R_1

A: x	2	4
B: y	6	8

~~= Representing R~~

→

- Representing R_1 in graph,

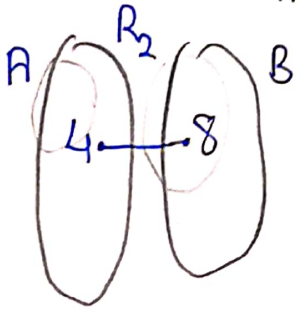


$R_1 = \{(2,6), (2,8), (4,6), (4,8)\}$

- Representing R_2 in ordered pair form,

$R_2 = \{(4,8)\}$

- Representing R_2 in mapping diagram

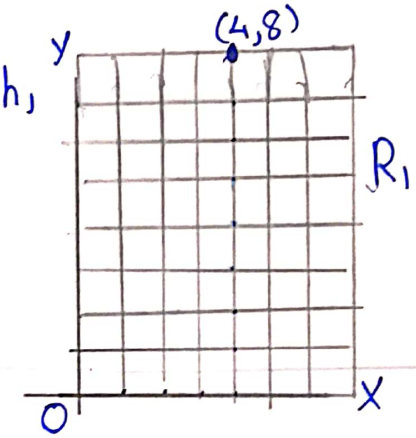


- Representing R_2 in table,

R_2

A:	4
B:	8

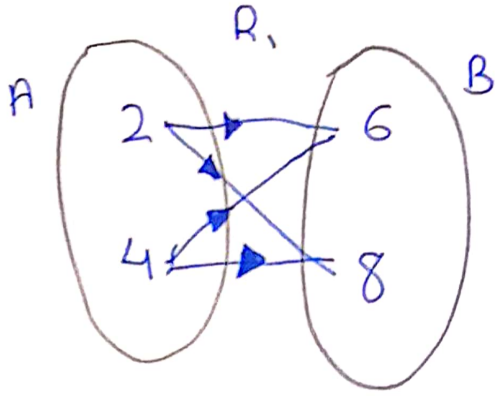
- Representing R_2 in graph,



7) → Soln,

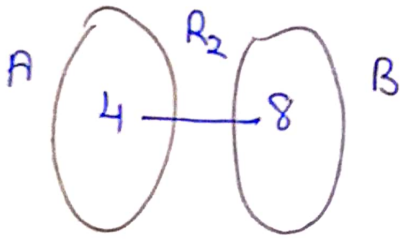
Here,

$R_1 = \{(2,6), (2,8), (4,6), (4,8)\}$



∴ R_1 is a ~~many~~ one to ~~one~~ many relation.

$R_2 = \{(4,8)\}$



∴ R_2 is a one to one relation.

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8) → Soln,

Here,

R_1 is ~~a one to many relation~~ not a function because every element of x does not have a unique relation with every element of y.

R_2 is a function because every element of x has a unique relation with every element of y.

THE END