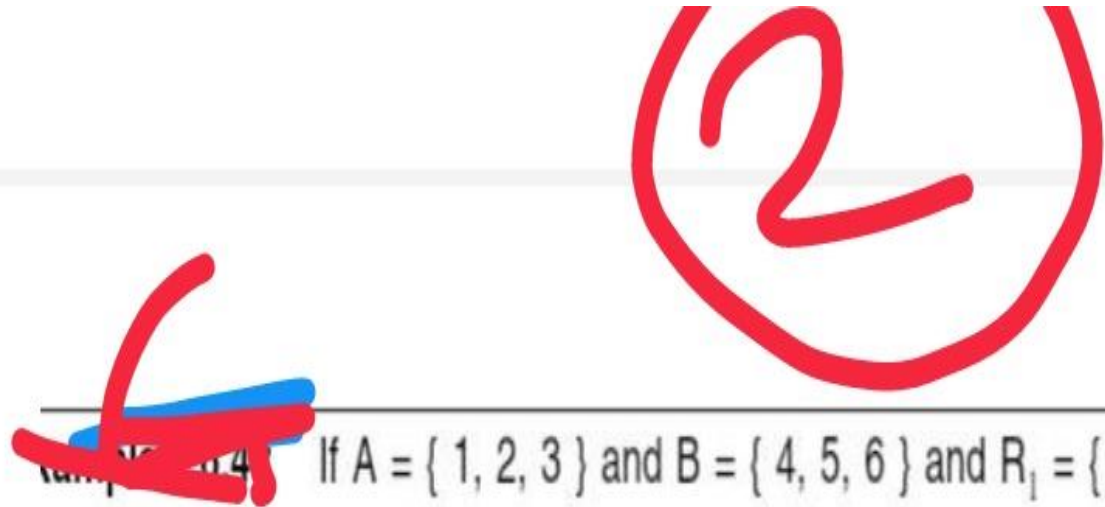


DM Assignment



1: If the function $f : \mathbb{R} \rightarrow \mathbb{R}$, defined as $f(x) = \frac{2x-3}{7} \quad \forall x \in \mathbb{R}$, then show that f is bijective. Hence find f^{-1} .



Example 4. If $A = \{ 1, 2, 3 \}$ and $B = \{ 4, 5, 6 \}$ and $R_1 = \{ (1, 1), (1, 2), (2, 2), (3, 2), (3, 3) \}$ and $R_2 = \{ (4, 4), (5, 5), (6, 6) \}$. Find the matrix $M(R_1) \times M(R_2)$.

Solution :

3

Example 3: Let $A = \{ a, b, c, d \}$. Let R be relation on A with adjacency matrix.

$$M(R) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}$$

Then find R as a subset of $A \times A$. Draw the diagram of R .

Solution:



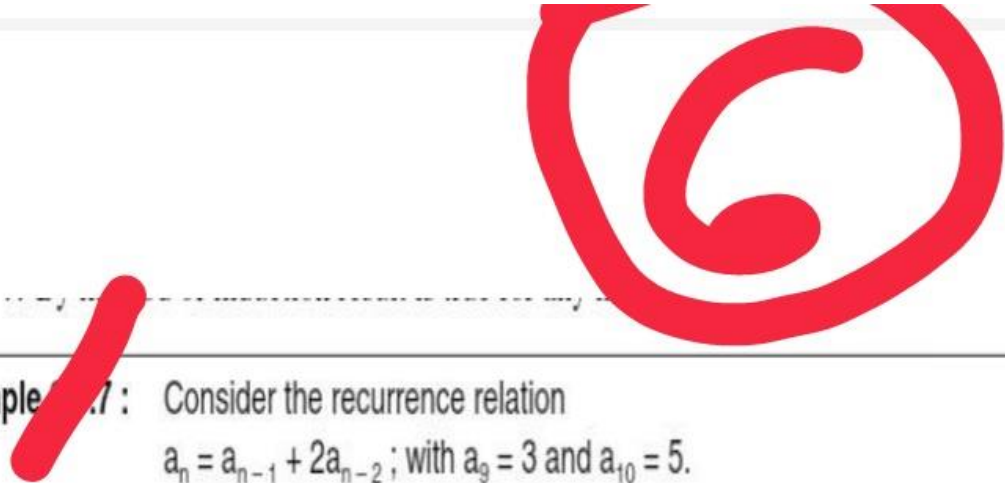
Example 2.6.8 : Draw the diagram of the relation.

$$R = \{ (1, 2), (3, 4), (3, 2), (4, 5), (5, 3), (1, 4) \}$$

Solution :

Example 12.1 : Let $A = \{1, 2, 3, 4, 12\}$. Let R be a partial order relation defined on A as aRb if and only if a/b (a divides b). Draw the Hasse diagram of partial order relation R .

Solution :



Example 1.7 : Consider the recurrence relation
 $a_n = a_{n-1} + 2a_{n-2}$; with $a_9 = 3$ and $a_{10} = 5$.
Find a_7 and a_{12} .

Solution :