

المراجعة

س4: (النصر الثاني 36/35)

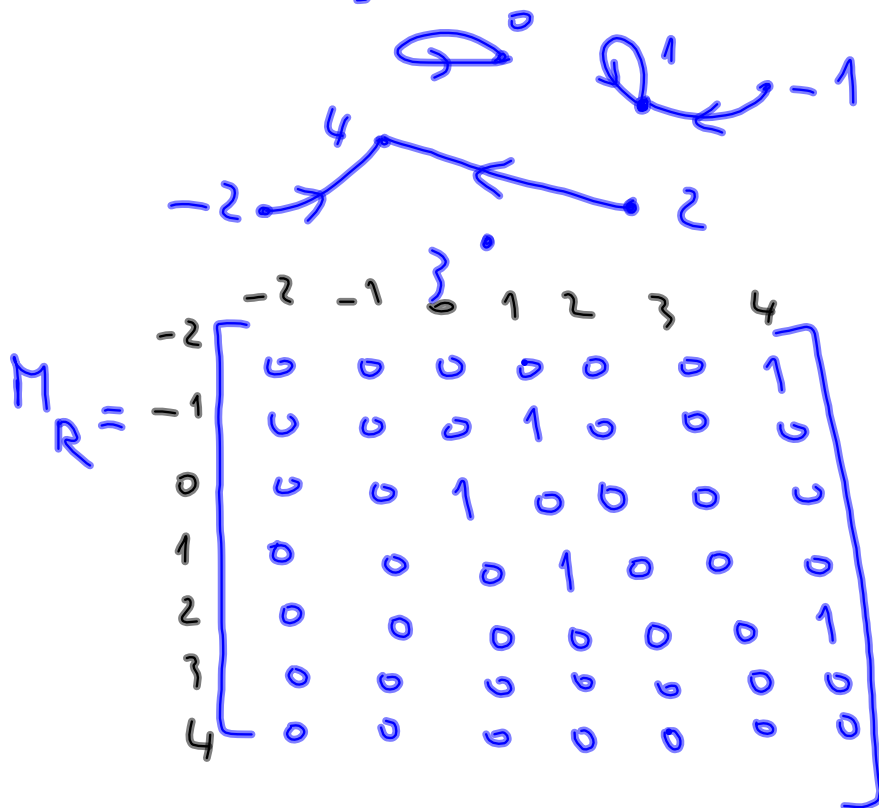
(أ) R علاقة على $A = \{-2, -1, 0, 1, 2, 3, 4\}$

$$a R b \iff a^2 = b$$

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

(ii) مجال العلاقة R : $D_R = \{-2, -1, 0, 1, 2\}$

مدى العلاقة R : $Im(R) = \{4, 1, 0\}$



$$R = \{1, 2, 3\} \text{ على } X \text{ على } S = \{(1,1), (1,2), (3,1), (3,3)\} \quad (\text{ب})$$

$$S^{-1} = \{(1,1), (2,1), (1,3), (3,3)\} \quad (\text{ج})$$

$$\left(\begin{array}{l} S \cap S^{-1} = \{(1,1), (3,3)\} \\ S \cup S^{-1} = \{(1,1), (1,2), (3,1), (3,3), (2,1), (1,3)\} \end{array} \right) \quad (\text{د})$$

$$S - S^{-1} = \{(1,2), (3,1)\} \quad (\text{هـ})$$

$$\left(\begin{array}{l} S \circ S^{-1} = \{(1,1), (1,2), (2,1), (2,2), (1,3), (3,1), (3,3)\} \\ S^{-1} \circ S = \{(1,1), (1,3), (3,1), (3,3)\} \end{array} \right) \quad (\text{و})$$

$$S \circ S^{-1} \neq S^{-1} \circ S$$

$$\boxed{(S \circ R)^{-1} = R^{-1} \circ S^{-1}} \quad \text{ملاحظة:}$$

$$(S \circ S^{-1})^{-1} = (S^{-1})^{-1} \circ S^{-1} = S \circ S^{-1}$$

$$(S^{-1} \circ S)^{-1} = S^{-1} \circ (S^{-1})^{-1} = S^{-1} \circ S$$