

CHARUTAR VIDYA MANDAL'S
SEMCOM

Vallabh Vidyanagar

Subject: Business Mathematics-I (Assignment).

Class: B.Com (Sem-I)

Q.1

(A) Solve the following equations by using **Cramer's rule**: $3x + y = 5$; $2x + 5y = -1$

(B) If $A = \{1, 3, 5\}$, $B = \{2, 4, 6, 8\}$, and $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ then verify De Morgan's laws.

(C) If $A = \{1, 2, 5, 6, 8\}$, $B = \{x: x \text{ is even}, x \leq 10, x \in N\}$ and $C = \{1, 2, 3, 5, 6, 11, 12\}$
Then verify
1. $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.
2. $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.

Q.2

(A) If $A = \begin{bmatrix} 1 & 3 \\ 4 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 \\ 2 & 5 \end{bmatrix}$ and $C = \begin{bmatrix} 0 & -1 \\ 1 & 3 \end{bmatrix}$, Then find a matrix X such that

$$2(X + A) = 3\left[X + \frac{1}{2}(A + B)\right] + C.$$

(B) If $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$, find AB and BA. Show that $AB \neq BA$.

(C) Solve using inverse of a matrix:

$$2x + y - z = 3$$

$$x + y + z = 1$$

$$x - 2y - 3z = 4$$