18 Mavzu

Kvadratik formalar

KVADRATIK FORMANI MATRITSAVIY YOZUVDA

$$L = x' \Delta x$$

L (x_1, x_2) = $2x_1^2 + 4x_1 x_2$ - 3 x_2^2

kvadratik forma berilgan.

Unda $x_1 = 2y_1 - 3y_2$, $x_2 = y_1 + y_2$ chiziqli almashtirish natijasida olinadigan L(y_1, y_2) kvadratik formani toping.

$$\Delta = \begin{pmatrix} 2 & 2 \\ 2 & -3 \end{pmatrix}, \quad C = \begin{pmatrix} 2 & -3 \\ 1 & 1 \end{pmatrix} \quad \text{bo`lgani uchun}$$

$\Delta^* = C' \Delta C$ dan

$$\Delta^* = \begin{pmatrix} 2 & 1 \\ -3 & 1 \end{pmatrix} \cdot \begin{pmatrix} 2 & 2 \\ 2 & -3 \end{pmatrix} \cdot \begin{pmatrix} 2 & -3 \\ 1 & 1 \end{pmatrix} = \begin{pmatrix} 13 & -17 \\ -17 & 3 \end{pmatrix}$$

Demak, L$(y_1; y_2)$ = $13 y_1^2 - 34 y_1 y_2 + 3 y_2^2$.

Etibor uchun raxmat!!!