



Reduction of quadratic form to canonical form by orthogonal transformation:

$$D = N^T A N$$

Since,  $(y_1 \ y_2 \ y_3) D \begin{pmatrix} y_1 \\ y_2 \\ y_3 \end{pmatrix}$ , where

$$y = \begin{pmatrix} y_1 \\ y_2 \\ y_3 \end{pmatrix} \therefore \boxed{CF = y^T D y}$$