

a. Tridiagonalize matrix A using Householder method.

The resulting tridiagonal matrix C is:

[ 7.      -3.74165739 0.      0.      ]

[-3.74165739 10.64285714 9.13085149 0.      ]

[ 0.      9.13085149 10.59421525 4.77158058]

[0.      0.      4.77158058 5.76292761]

b. The transformation matrix P:

[1. 0. 0. 0.]

[ 0.      -0.53452248 -0.25506831 0.80574554]

[ 0.      -0.80178373 -0.14844139 -0.57888514]

[ 0.      0.26726124 -0.95546079 -0.12516436]