

King Fahd University of Petroleum and Minerals
MATH-302

Quiz 2

Name:

ID:

Sec.: 04

(1) (a) Find an orthogonal matrix \mathbf{P} that diagonalizes $\mathbf{A} = \begin{pmatrix} 9 & 1 & 1 \\ 1 & 9 & 1 \\ 1 & 1 & 9 \end{pmatrix}$.

(b) Find \mathbf{P}^{-1} .

(c) Find $\mathbf{P}^{-1}\mathbf{A}\mathbf{P}$.

(2) Solve the system using inverse of a matrix.

$$x_1 + 2x_2 + 3x_3 = 5$$

$$2x_1 + 9x_2 + 3x_3 = -1$$

$$x_1 + 4x_3 = 9$$