Quiz N°2 Math 302_131 (October 03, 2013)

KFUPM **Semester 122**

Dept. Math. &Stat. **A.Y:2012/2013**

Name: .....

ID: .....

Exercise

Le $A = \begin{pmatrix} 5 & 2 & -2 \\ 2 & 5 & -2 \\ -2 & -2 & 5 \end{pmatrix}$

(a) Verify that $\det(\lambda I_3 - A)$, the characteristic polynomial of A, is given by

$$(\lambda - 3)^2 (\lambda - 9).$$

(b) Find an orthogonal matrix P such that

$${}^{t}PAP = diag(3,3,9)\ .$$