

Quiz 11

Name : _____

SID : _____

CAUTION. *Minor mistakes can cause much deduction of points.* So, please read each questions carefully and figure out what they want.

1. Solve the initial value problem

$$\frac{d^2y}{dt^2} + y = 0, \quad y(0) = 1, \quad y'(0) = 1.$$

2. Do *orthogonally diagonalization* for

$$A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 0 & 0 \\ 1 & 0 & 0 \end{bmatrix}$$

[Hint] *Orthogonally diagonalize* = Find an orthogonal matrix P and a diagonal matrix D such that $A = PDP^T$ (or $A = PDP^{-1}$).