Math 321 Quiz 1

Sep. 17, 2012

Your Name:

Instructions: You are expected to finish this quiz in 15 minutes. Discussion within **pairs** *is allowed. Bonus credits could be counted till your overall score is 10.*

As in the figure below, $\overline{OD} = 1, \varphi = \pi/4, \theta = \pi/6$.

1). Write out the position vector of P in spherical representation (Don't use $\hat{x}, \hat{y}$ etc). (3')

2). Obtain the expression of $\hat{r}$ in terms of $\hat{x}, \hat{y}, \hat{z}$ (7')

3). (Bonus) Find the components of $\overrightarrow{OD}$ with respect to $\{\overrightarrow{OP}, \hat{z}\}$ (4')