Name:

Linear Algebra II - Quiz 3

All the solutions should be properly justified and explained. Clarity of the presentation will also be rewarded.

The maximal number of points awarded is 10. We consider the following vectors of \mathbb{P}^4 :

We consider the following vectors of $\mathbb{R}^4:$

$$\vec{u} = \begin{bmatrix} 2\\3\\1\\0 \end{bmatrix}$$
 and $\vec{v} = \begin{bmatrix} 0\\2\\1\\-\sqrt{2} \end{bmatrix}$

1. Compute $||\vec{u}||$, $||\vec{v}||$, $\vec{u} \cdot \vec{v}$ and the angle between \vec{u} and \vec{v} .

2. Give an orthonormal basis of $V = \text{Span}(\vec{u}, \vec{v})$.