Math 173 - Quiz 2

Name _____

January 26, 2012

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) Find the angle between the vectors $\vec{u} = 5\hat{\imath} - 7\hat{k}$ and $\vec{v} = -3\hat{\imath} + 2\hat{\jmath} - 5\hat{k}$.

2. (2 points) What does it mean for two vectors to be orthogonal? Find a nonzero vector that is orthogonal to $\vec{w} = 13\hat{\imath} - 7\hat{\jmath} - 17\hat{k}$.

3. (2 points) Find the projection of $\vec{y} = 5\hat{\imath} - \hat{\jmath} - 2\hat{k}$ onto $\vec{x} = 3\hat{\imath} + 6\hat{\jmath} - 9\hat{k}$.

4. (3 points) Find a unit vector orthogonal to both $\vec{u} = 2\hat{\imath} - 4\hat{\jmath} + 6\hat{k}$ and $\vec{v} = 7\hat{\imath} + \hat{\jmath} + 2\hat{k}$.