Math 173 - Quiz 2

Name _____

February 6, 2014

Score _____

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

1. (8 points) Let $\vec{u} = \hat{\imath} - 3\hat{\jmath} + 2\hat{k}$ and $\vec{w} = 5\hat{\imath} + 2\hat{\jmath} - \hat{k}$.

   (a) Find the projection of $\vec{w}$ onto $\vec{u}$.

   (b) Find the angle between $\vec{u}$ and $\vec{w}$.

   (c) Find a vector orthogonal to both $\vec{u}$ and $\vec{w}$.

   (d) Without doing any computations, explain why it is impossible to find a unit vector in the direction of $\vec{u} \times \vec{u}$.

2. (2 points) If $\vec{u} \cdot \vec{v} = \vec{u} \cdot \vec{w}$, must it be true that $\vec{v} = \vec{w}$?