Math 173 - Quiz 1

Name _____

January 30, 2014

Score _____

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

1. (3 points) The graph of the equation $(4-x)y^2 = x^3$ is called a *cissoid*. Find a unit vector normal to the cissoid at the point $(2, 2)$.

2. (3 points) The vector $\vec{u}$ has magnitude 4 and makes a 30°-angle with the positive x-axis. The vector $\vec{w}$ has magnitude 4 and is parallel to $-2\hat{\imath}+\hat{\jmath}+3\hat{k}$. Find the component form of $\vec{u}+\vec{w}$.

3. (2 points) Find a unit vector orthogonal $8\hat{\imath} - 7\hat{\jmath} + 2\hat{k}$.

4. (2 points) Suppose $\vec{u}$ and $\vec{v}$ are orthogonal to $\vec{w}$. Show, or explain how you know, that $3\vec{u} - 2\vec{v}$ is orthogonal to $\vec{w}$.