MATH 251: Quiz 1

September 10, 2015

Name: _____ Sec: _____

1. Find the components of the vector $\vec{u}$ that has base point $(4, -6, -1)$ and terminal point $(5, -2, 4)$.

2. Let $\vec{v} = \langle 3, 12, -4 \rangle$ and $\vec{w} = \langle 2, -1, 2 \rangle$.

(a) Calculate $5\vec{v} - 2\vec{w}$.

(b) Calculate $\vec{v} \cdot \vec{w}$.

(c) Find the angle between v and w. You can leave this answer as an inverse cosine.

3. Determine whether the lines $\vec{r_1}$ and $\vec{r_2}$ intersect, where

$$\vec{r_1}(t) = \langle -1 - t, 1 - 3t, t - 1 \rangle \qquad \vec{r_2}(t) = \langle -2 + 2t, -1 + 5t, -3 + t \rangle.$$

If they do, find the point of intersection. If they do not, state this.