Name: _____

Student ID: _____

Quiz 7

This quiz is graded out of 10 marks. No books, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. Let $\mathbf{u} = (1, 3, -1)$, $\mathbf{v} = (2, -2, -2)$, $\mathbf{w} = (1, -1, -3)$.

    a. *(3 marks)* Find the scalar triple product of $\mathbf{u}$, $\mathbf{v}, \mathbf{w}$.

    b. *(1 mark)* Find the volume of the parallelepiped with sides $\mathbf{u}$, $\mathbf{v}$, $\mathbf{w}$.

Question 2. *(4 marks)* Find the area of the parallelogram determined by $\mathbf{x} = (3, -2, 2)$ and $\mathbf{y} = (-1, 1, -3)$.

Question 3. *(2 marks)* Suppose that $\mathbf{u} \cdot (\mathbf{v} \times \mathbf{w}) = -13$ then find $\mathbf{v} \cdot (\mathbf{w} \times \mathbf{u})$ and justify.