

## Calculus III Quiz 0

Don't forget to write down clearly your **Name**:

and **Net Id**:

**1. Property of dot product (5 points)** Show that if  $\mathbf{u}, \mathbf{v}$  are two vectors of  $\mathbb{R}^3$ , then

$$\|\mathbf{u} - \mathbf{v}\|^2 = \|\mathbf{u}\|^2 + \|\mathbf{v}\|^2 - 2\|\mathbf{u}\|\|\mathbf{v}\|\cos\theta,$$

where  $\theta$  is the angle between  $\mathbf{u}$  and  $\mathbf{v}$

**2. Projection formula (5 points)** Find the projection of the vector  $\mathbf{i}$  along the direction of the vector  $\mathbf{i} + \mathbf{j} + \mathbf{k}$ .