Quiz 2 Calculus 3 9/3/2004

Each problem is worth 5 points. Clear and complete justification is required for full credit.

Use the vectors \( \mathbf{u} = 3\mathbf{i} + 2\mathbf{j} - \mathbf{k} \) and \( \mathbf{v} = -2\mathbf{i} + \mathbf{j} + 2\mathbf{k} \) for the following problems:

1. Find \( ||\mathbf{u}|| \).

2. Find a unit vector in the direction of \( \mathbf{v} \).

3. Find \( \mathbf{u} \cdot \mathbf{v} \).