Quiz 1 Calculus 3 8/31/2011

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

1. Suppose $\mathbf{a} = 5\mathbf{i} - 4\mathbf{k}$ and $\mathbf{b} = 4\mathbf{i} - \mathbf{j} + 2\mathbf{k}$. Find $\mathbf{a} + \mathbf{b}$ and $3\mathbf{a} - \mathbf{b}$.

2. Find a unit vector in the direction of $\mathbf{v} = \langle 2, -1, 2 \rangle$.

3. Compute $\langle -3, 1, -2 \rangle \cdot \langle 2, 4, -1 \rangle$.