Name: _____

Please write clearly and show all of your work.

1. Let $\mathbf{w}$ be the vector $\langle 1, \sqrt{2}, 1 \rangle$.

   (a) What is $|\mathbf{w}|$?

   (b) Find the unit vector in the same direction as $\mathbf{w}$.

2. Let $\mathbf{u} = \langle 1, 3, 2 \rangle$ and $\mathbf{v} = \langle 0, 2, 1 \rangle$ be vectors.

   (a) What is $\mathbf{u} + \mathbf{v}$?

   (b) What is $\mathbf{u} . \mathbf{v}$? Is the angle between $\mathbf{u}$ and $\mathbf{v}$ acute or obtuse? Why?

   (c) What is $\mathbf{u} \times \mathbf{v}$?