Math 273 | Quiz 2 | Name: _____

9 Sept 2016 | Show appropriate work. | Point Values in $\boxed{\text{boxes}}$.

1. $\boxed{2}$ Please indicate **T**rue or **F**alse. Assume the vectors $\mathbf{u}$ and $\mathbf{v}$ are non-zero.

   (a) **T / F :** $\mathbf{u} \cdot \mathbf{u} = 0$

   (b) **T / F :** $\mathbf{u} \times \mathbf{u} = \mathbf{0}$

   (c) **T / F :** $\|\mathbf{u}_{\|\mathbf{v}} + \mathbf{u}_{\perp\mathbf{v}}\| = \|\mathbf{u}\|$

   (d) **T / F :** $\mathbf{k} \times \mathbf{j} = -\mathbf{i}$

2. $\boxed{4}$ Find the decomposition of $\mathbf{u} = \langle 3, -5, -7 \rangle$ along $\mathbf{v} = \langle 1, 2, 3 \rangle$, i.e. find $\mathbf{u}_{\|\mathbf{v}}$ and $\mathbf{u}_{\perp\mathbf{v}}$.

3. $\boxed{4}$ Find a unit vector orthogonal to both $\mathbf{u} = \langle 1, 2, 3 \rangle$ and $\mathbf{v} = \langle 0, 1, 2 \rangle$.