

Math 2260 Quiz 20.5 (Practice)

Name _____

Points will be deducted for untidy or disorganized answers

1. Show that squares are the only rectangles with perpendicular diagonals.
2. Let $\mathbf{u} = 2\mathbf{i} + 2\mathbf{j} + \mathbf{k}$ and $\mathbf{v} = 2\mathbf{i} + 10\mathbf{j} - 11\mathbf{k}$.
 - (a) Find
 - i. $\mathbf{u} \cdot \mathbf{v}$ and $|\mathbf{v}|$
 - ii. the scalar component of \mathbf{u} in the direction of \mathbf{v}
 - iii. the vector projection of \mathbf{u} onto \mathbf{v} , $\text{proj}_{\mathbf{v}}\mathbf{u}$
 - (b) Find the length and direction of the vectors $\mathbf{u} \times \mathbf{v}$ and $\mathbf{v} \times \mathbf{u}$