

Name: _____

Panther ID: _____

Quiz 1

MAC-2313

Spring 2022

1. Consider the vectors $\mathbf{u} = \mathbf{i} - \mathbf{j}$ and $\mathbf{v} = \mathbf{i} - 2\mathbf{j} + 2\mathbf{k}$ in \mathbf{R}^3 .

(a) (2 pts) Compute the dot product $\mathbf{u} \cdot \mathbf{v}$.

(b) (3 pts) Find the angle θ between \mathbf{u} and \mathbf{v} .

(c) (3 pts) Compute the cross product $\mathbf{u} \times \mathbf{v}$.

(d) (2 pts) Find the area of the parallelogram generated by \mathbf{u} and \mathbf{v} .

(e) (2 pts bonus) Find the cartesian equation of the plane that contains the point $A(1, 2, 3)$ and is parallel to both vectors \mathbf{u} and \mathbf{v} .