

Worksheet 6 Math 126

In this worksheet you will study the dot and cross products.

1. Consider the regular hexagon.

(a) Compute the magnitudes $|\mathbf{u}|$, $|\mathbf{v}|$ and $|\mathbf{w}|$.

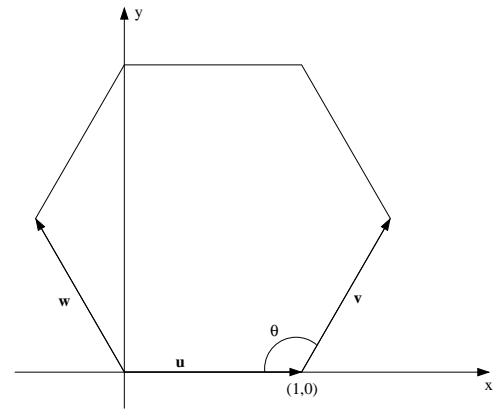
(b) What is the angle θ ?

(c) Compute $\mathbf{u} \cdot \mathbf{v}$.

(d) Compute $\mathbf{u} \cdot \mathbf{w}$.

(e) What are $\text{proj}_{\mathbf{u}}\mathbf{w}$ and $\text{proj}_{\mathbf{w}}\mathbf{v}$?

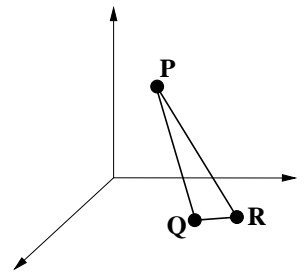
(f) What is the x -component of $\mathbf{u} + \mathbf{v} + \mathbf{w}$?



(there's more on the back...)

2. Consider the triangle with vertices $P(1, 1, 3)$, $Q(2, 3, 1)$ and $R(-1, 2, -2)$.

(a) Compute the cosines of the three internal angles of the triangle.



(b) Find a vector orthogonal to the plane containing the triangle.

(c) Compute the area of the triangle.