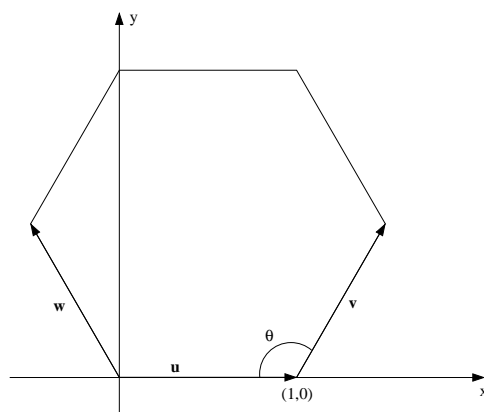


Work Sheet #6

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 $\mathbf{u} \cdot \mathbf{w}$.

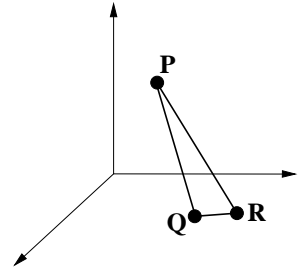
- (e) What are $\text{proj}_{\mathbf{u}}\mathbf{w}$ and $\text{proj}_{\mathbf{w}}\mathbf{v}$?

- (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.