Math 3160 - Quiz 3

Name:_____

Let $\mathbf{v} = (1, 0, -1)$ and $\mathbf{w} = (2, -1, 0)$ be vectors in $\mathbb{R}^3$. and let $P(1, 1, 1)$ and $Q(0, -4, 0)$ be two points in $\mathbb{R}^3$.

1. Find a vector that is parallel to $\mathbf{v}$ and unit.
2. Compute the angle between $\mathbf{v}$ and $\mathbf{w}$.
3. Find the equation of a line containing P and Q.
4. Find the point-normal equation of a plane containing P and with normal vector $\mathbf{v}$.
5. Find the equation of a line contained within the plane from Problem 4.
6. Find the parametric equation of the plane conatining the origin, P and Q.
7. Find the point-normal equation of the plane conatining the origin, P and Q from Problem 6.