READING 2 (DUE 09/04)

NAME:

Read the portion of section 1.2 starting with the subsection titled *Orthogonal Vectors* (pg. 26-29). Read section 1.3 (pg. 34-44). Then answer the following questions in a *few* words.

1) If $\mathbf{u}$ is a unit vector then $\text{proj}_{\mathbf{u}}(\mathbf{v}) = (\mathbf{u} \cdot \mathbf{v})\mathbf{u}$. Why?

2) Let $\mathbf{n} = [a, b, c]$ be a specified normal vector in $\mathbb{R}^3$; $\mathbf{x} = [x, y, z]$ represent a point in $\mathbb{R}^3$ in which x, y and z may vary; and $\mathbf{p}$ is thought of as a fixed point in $\mathbb{R}^3$. Why does the equation $\mathbf{n} \cdot \mathbf{x} = \mathbf{n} \cdot \mathbf{p}$ NOT represent the equation of a line in $\mathbb{R}^3$?