Math 208 Quiz 2

Name:_____ Score:_____

Instructions: You must show supporting work to receive full and partial credits. No text book, notes, formula sheets allowed.

1. (*4*) Find the distance between the point $(1, 1, 1)$ and the plane $x + 2y + z = 0$.

2. (*4*) Sketch the surface of the equation $4x^2 - y + z^2 = 1$, showing a few appropriate traces.

3. (*4*) Find the position function of a moving objection whose acceleration is $\vec{a}(t) = \langle t, 1, \sin 2t \rangle$, and whose initial velocity and position are $\vec{v}(0) = \langle 0, 1, 0 \rangle$, $\vec{r}(0) = \langle 1, 1, 1 \rangle$, repectively.

4. (*4*) Find the unit tangent vector, $\vec{T}$, of $\vec{r}(t) = \langle t, 2\cos t, \sin t \rangle$ at the point $t = 0$.

5. (*4*) Find the curvature, κ, of the curve $\vec{r}(t) = \langle t, 2\cos t, \sin t \rangle$ at the point $t = 0$.

END