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. (*2*) Find the area of the triangle with vertices $P(0,0,-1), Q(1,1,1), R(0,2,0)$.

2. (*2*) Find the distance between the point $(1,2,3)$ and the plane containing the points $P(0,0,-1), Q(1,1,1), R(0,2,0)$.

3. (*2*) Find an equation of the plane through $(1,2,3)$ and parallel to another plane: $x+2y+3z=1$.

4. (*4*) Find the distance between the point $(1,2,3)$ and the line: $x=1+t, y=t, z=t$.

5. (*4*) Two lines are given: $\ell_1 : x = 1 + t, y = -1 + 2t, z = 2 - t$, and $\ell_1 : x = -1 - 2t, y = t, z = 3 + t$. Do they intersect? If yes, write the intersection point.

6. (*3*) Write an equation for the line that is tangent to the curve $\vec{r}(t) = \langle e^{2t-1}, -3t^2, \sin(\pi t)\rangle$ at the point $\vec{r}(\frac{1}{2})$

7. (*3*) Find the vector function $\vec{r}(t)$ of a curve if it starts at $\vec{r}(0) = \langle 0, 1, 2\rangle$ and its velocity is $\vec{v}(t) = \langle \sin(2t), 3t^2 + 1, 2e^{2t}\rangle$

END