Name:_____
Student ID:_____

Quiz 6

May. 9, 2007

1. (10pts) Find an equation of the line through $(0, 2, 1)$ and parallel to $< 1, 2, 3 >$.

Let (x, y, z) be a point on the line, then

$$< x-0, y-2, z-1 > \parallel < 1, 2, 3 >,$$

or $< x-0, y-2, z-1 > = t < 1, 2, 3 >$ for $t \in \mathbb{R}$

or $\begin{cases} x = t \\ y = 2+2t \\ z = 1+3t \end{cases}$

2. (10pts) Find an equation of the plane containing the point $(2, 1, 3)$ with normal vector $< 4, 5, 6 >$.

Let (x, y, z) be a point on the plane, then

$$< x-2, y-1, z-3 > \perp < 4, 5, 6 >$$

or $< x-2, y-1, z-3 > \cdot < 4, 5, 6 > = 0$

or $4(x-2) + 5(y-1) + 6(z-3) = 0$