Math 126A **Calculus With Analytic Geometry III** **Fall 1995**

QUIZ #5 ANSWERS

10/26/95

In both of the following problems, C is the curve in space given by the parameter representation

$$(x(t), y(t), z(t)) = (2 - t^2, e^{-t}, 4t),$$

and Q is the point on C corresponding to the parameter value $t = -1$.

For both problems, equations of lines should be written in parameter form, and equations of planes should be written in the standard form $Ax + By + Cz = K$.

(1) Indicate the type of tangent object C has at Q (line or plane), and write an equation for it.

Type of tangent object: line

Equation for tangent object: $(x(u), y(u), z(u)) = (1 + 2u, e - eu, -4 + 4u)$

(2) Indicate the type of normal object C has at Q (line or plane), and write an equation for it.

Type of normal object: plane

Equation for normal object: $2x - ey + 4z = -14 - e^2$