Section _____ **Name** _____

TA _____ **Student Number** _____

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

QUIZ #4

10/19/95

Don't worry about algebraically simplifying numbers (i.e. you may leave radicals in the denominator, fractions unreduced, etc.). **Show your work.**

The line m in space is defined by the equations

$$x(s) = 1 + s$$
$$y(s) = 2 - s$$
$$z(s) = 2 - 2s$$

Another line k is defined by

$$x(u) = 3 - u$$
$$y(u) = 3$$
$$z(u) = 1 + u$$

Observe that they intersect at the point $Q(0, 3, 4)$.

(1) Find the components of a vector parallel to m and a vector parallel to k.

Vector parallel to $m =$ | |

Vector parallel to $k =$ | |

(2) Find a vector $\vec{n}$ that is perpendicular to both lines.

$\vec{n} =$ | |

(3) Write down a parameter representation for the line through Q which is perpendicular to both lines, in the following form:

$x(t) =$ | |

$y(t) =$ | |

$z(t) =$ | |