

MthU242
Northeastern University
Quiz #9
20 Minutes

Calculus II
Professor Gilmore
Mar. 27, 2008

Name: _____.

Show All Your Work

1. a. Write the equation in rectangular coordinates in three dimensional space, for the plane which is perpendicular to the y axis and passes through the point $P = (1, 2, 3)$.

b. Write the equation in rectangular coordinates in three dimensional space, for a sphere of radius 5 centered at the point $Q = (3, 4, -5)$.

b. A robin is migrating due north on a night with a wind blowing from the southeast. That is the robin is constantly directing its flight due north at a speed of 10 miles an hour. The wind is coming from the southeast, 45 degrees east of due south at 15 miles an hour, constantly. What is the true course and groundspeed of the robin? Give an angle from the north to indicate the course.

2. Find the vector that is the projection of the vector $\mathbf{A} = (3, -5, 2)$ on the line through the vector $\mathbf{B} = (4, 2, -3)$.