

Name: \_\_\_\_\_

This quiz covers: 9.1, 9.2 and 9.3.

**Directions:** Complete all questions and **show all applicable work.** Partial credit will be given. All questions are equally weighted.

1.) Describe the characteristic traits (center/radius) of the sphere:

$$x^2 + y^2 + 2y + z^2 - 3 = 5$$

2.) Given the vectors  $u = \langle 3, 4 \rangle$  and  $v = \langle 3, -1 \rangle$ , compute:

1. The magnitude (distance) of vector  $u$ .
2. A unit vector in the direction of  $u$ .

3.) Using  $u$  and  $v$  from the prior problem, compute BOTH the scalar and vector projections of  $u$  onto  $v$ .