Name:

This quiz covers: 9.1 through 9.6 **DUE: Monday 4/30**

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

1.) Given $u =< 5, -4, 2 >$ and $v =< 0, -1, -3 >$, compute:

1. $u + v =$

2. $u - v =$

3. $u \cdot v =$

4. $u \times v =$

5. the angle between u and v

6. a vector orthogonal to both u and v (verify with the dot product).

7. a vector parallel with u (verify with the cross product).

8. a unit vector in the *opposite* direction of v

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

3.) Draw a three dimensional axis using the right hand rule where the positive y-axis points left and the positive z-axis points down. Be sure to note which side of each axis is positive.

4.) Find the equation of the line through the point P(1,-3,5) and Q(2, 4, 5).

5.) Find the equation of a line through the point P(0,3,5) and parallel to the line:

$$x = 3t + 4 \qquad y = -3t \qquad z = -3$$