Quiz 12.1 - 12.4 _____ Name: _____

Show all work and circle answers. 15 pts. Per.: _____

No Calculators.

1) Let **v** have initial point (3, 7) and terminal point (3, -2). Find the *component form* of **v**. (1 pt.)

2) Find a unit vector in the direction of **v** = 3**i** - 2**j**. (2 pts.)

3) Write the standard equation of a sphere that has points (4, -3, 5) and (-6, 1, -1) as endpoints of a diameter. (3 pts.)

4) Is **u** = 8**i** + 4**j** + 10**k** parallel to **v** = -4**i** - 2**j** + 5**k**? If so, find *c* such that **u** = *c***v**. (1 pt.)

5) **u** = <3, 2>, **v** = <1, -1>. Find **u** • **v**. Are **u** and **v** orthogonal? (2 pts.)

6) **v** = <3, 2>, **w** = <1, -3>
Find the projection of **v** onto **w**. (2 pts.)

7) Calculate the angle **v** = 3**i** - 5**j** + **k** makes with the positive *y*-axis. Leave your answer in "arc-trig" form. (2 pts.)

8) Find ||**u** × **v**|| for **u** = <-1, 2, 2> and **v** = <3, -2, 1>. (2 pts.)

Bonus) What does the result in #8 represent? (+1 pt.)