## **Review Problems**

January 13, 2017

1. (Fall 2002, Exam 1, #3) For the vectors represented in the figure, write  $\mathbf{w}$  in terms of  $\mathbf{u}$  and  $\mathbf{v}$ .



- 2. (Fall 2004, Exam 1, #1) Find the diameter of the sphere  $x^2 + y^2 + z^2 2x + 4y 6z = -5$ .
- 3. (Fall 2006, Exam 1, #1) Find the center and the radius of the sphere given by  $x^2 + y^2 + z^2 = 4x + 3y$ .
- 4. (Fall 2006, Exam 1, #2) Find the point 1/4 of the way from (1, -3, 1) to (7, 9, -9).
- 5. (Fall 2007, Exam 1, #1) If  $\vec{p} = \langle 1, 3, 4 \rangle$  and  $\vec{q} = \langle 3, 1, 1 \rangle$ , then find  $|\vec{p} \vec{q}|$ .
- 6. (Fall 2008, Exam 1, #1) Find the distance between the points (2, 1, 4) and (1, 2, 2).
- 7. (Fall 2008, Exam 1, #3) A bug is doing 2 meters/min along the diagonal of a terrarium, indicated in the figure in overview. The terrarium is mounted on a cart going at 6 meters/min, again as indicated below. Find the speed of the bug relative to the ground in meters/min.

