Name_____ ID_____

MATH 251   Quiz 1   Fall 2006

Sections 507   P. Yasskin

1-4	/20
5	/ 5
Total	/25

Multiple Choice & Work Out: (5 points each)

1. Find the equation of a sphere if one of its diameters has endpoints $(1,0,3)$ and $(7,8,-21)$.

    a. $(x+4)^2 + (y+4)^2 + (z-9)^2 = 169$

    b. $(x+4)^2 + (y+4)^2 + (z-9)^2 = 13$

    c. $(x-4)^2 + (y-4)^2 + (z+9)^2 = 169$

    d. $(x-4)^2 + (y-4)^2 + (z+9)^2 = 13$

    e. $(x-4)^2 + (y+4)^2 + (z+9)^2 = 13$

2. If $\vec{u}$ points North and $\vec{v}$ points SouthEast, then $\vec{u} \times \vec{v}$ points

    a. Up (away from the center of the earth)

    b. Down (toward the center of the earth)

    c. SouthWest

    d. WestSouthWest

    e. EastNorthEast

3. Find the equation of the plane through the points $P = (2,1,2)$, $Q = (3,4,2)$ and $R = (2,2,5)$.
What is the z-intercept?.

    a. 17

    b. 20

    c. 23

    d. 26

    e. 27

4. For what value of x is the scalar projection of $\vec{b} = \langle 2, 2x, x+1 \rangle$ onto $\vec{a} = \langle 4, 3, 0 \rangle$ equal to 1?

  a. $x = -2$

  b. $x = -\dfrac{3}{2}$

  c. $x = -1$

  d. $x = -\dfrac{1}{2}$

  e. $x = \dfrac{1}{2}$

5. Find the point where the line $(x, y, z) = (1 - t, -3 + 2t, 1 - 2t)$ intersects the plane $(x, y, z) = (2 - r - s, 1 + 2r, 3)$ or show they don't intersect.

SOLVE ON THE BACK OF THE SCANTRON.