Name:_____

MA 3330: Quiz 2

1. For the points $P(1,2,3)$, $Q(1,0,1)$, and $R(2,0,0)$,
   (a) Find the line containing P, and R.
   (b) Find the plane containing P, Q and R.
   (c) Is P in the plane $x - 2y = 0$.
2. Find the plane containing the two lines
   $$x = 2 + t, y = 3 - t, z = t$$
   $$x = 2, y = 3 + 3t, z = 5t$$
   Also compute the acute angle between the two lines.
3. Do the two lines intersect?
   $$x = 2 + t, y = 3 - t, z = 1 + 4t$$
   $$x = 3 + t, y = 3 + 3t, z = 6 + 8t$$
   If yes, find the point of intersection.
4. Find the angle between the two planes
   $$x - 2y = 7, \text{ and } x + y + z = 0.$$
5. Show the vectors $\mathbf{v} = \langle 2t, t^2, 1 + t\rangle$ and $\mathbf{w} = \langle 1, 2, -2t\rangle$ are orthogonal (perpendicular) for all t.
6. Graph showing traces for $z = 0, 1, 2, 3$ and $x = 0$.
   $$z^4 = x^2 + y^2$$