

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 and the equation of the line conating the two lines.

4. Find the angle between the two planes

$$x - 2y = 7, \text{ and } x + y + z = 0.$$

5. Show the vectors $\mathbf{v} = \langle 2\mathbf{t}, \mathbf{t}^2, \mathbf{1} + \mathbf{t} \rangle$ and $\mathbf{w} = \langle \mathbf{1}, \mathbf{2}, -2\mathbf{t} \rangle$ are orthogonal (perpendicular) for all t .
6. Graph showing traces for $z = 0, 1, 2, 3$ and $x = 0$.

$$z^4 = x^2 + y^2$$

7. ~~Graph the equation given in cylindrial coordinates.~~
8. ~~Graph the equation given in cylindrial coordinates.~~
9. ~~Graph the equation given in spherical coordinates.~~