

"QUIZ" for Lecture 3

E-MAILSCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q3FirstLast.pdf) ASAP BUT NO LATER THAN Sept. 15, 8:00pm

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1. Find an equation of the plane that passes through the points  $(0, 1, 1)$ ,  $(1, 0, 1)$ ,  $(1, 1, 0)$ .

P Q R

$$PQ = \langle 1, -1, 0 \rangle$$

$$PR = \langle 1, 0, -1 \rangle$$

$$PQ \times PR = \langle 1, 1, 1 \rangle$$

$$\text{Plane equation: } 1(x-0) + 1(y-1) + 1(z-1) = 0$$

$$x + y + z = 2$$

2. Find the intersection of the line

$$r(t) = \langle 1, 1, 0 \rangle + t\langle 0, 2, 4 \rangle$$

and the plane

$$x + y + z = 14$$

$$r(t) = \langle 1, 2t+1, 4t \rangle$$

$$x + y + z = 14$$

We can solve the following system of equations in maple to find the solution:

$$x = 1, y = 2t + 1, z = 4t, x + y + z = 14$$

the solution is at  $t = 2$  we have the intersection point  $(1, 5, 8)$