

"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

NAME:

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

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

$$\begin{vmatrix} i & j & k \\ 1 & -1 & 0 \\ 1 & 0 & -1 \end{vmatrix} = i + j + k \\ \langle 1, 1, 1 \rangle$$

$$1(x-0) + 1(y-1) + 1(z-1) = 0$$

$$x + y + z = 2$$

2. Find the intersection of the line

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

and the plane

$$x + y + z = 14$$

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

$$1 + (1+2t) + 4t = 14 \Rightarrow 6t = 12 \\ t = 2$$

$$x = 1 \quad y = 5 \quad z = 8$$