You can share my answers

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

NAME:

P   Q   R

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

$\vec{PQ} = \langle 0,1,1\rangle - \langle 1,0,1\rangle = \langle -1,0,0\rangle$

$\vec{PR} = \langle 0,1,1\rangle - \langle 1,1,0\rangle = \langle -1,0,1\rangle$

$\vec{n} = \vec{PQ} \times \vec{PR} = \begin{bmatrix} -1 \\ 0 \\ 0 \end{bmatrix} \times \begin{bmatrix} -1 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 & - & 0 \\ 0 & - & (-1) \\ 0 & - & 0 \end{bmatrix}$

$d = \vec{n} \cdot \vec{OP} = \langle 0,1,0\rangle \cdot \langle 0,1,1\rangle = 0 + 1 + 0 = 1$

$y = 1$

2. Find the intersection of the line

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

and the plane

$$x + y + z = 14 \quad .$$

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

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

$= \langle 1, 2t+1, 4t\rangle$

$1 + (2t+1) + 4t = 14$

$6t + 2 = 14$

$6t = 12$

$t = 2$

$r\langle 2\rangle = \langle 1,5,8\rangle$

$(1,5,8)$