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"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: $ax + by + cz = d$

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

$$\begin{aligned} b + d &= d \\ a + b &= d \\ a + b &= c + d \end{aligned}$$

$$x + y + z = 2$$

$$a = b = c = \frac{1}{2}d$$

$$\frac{1}{2}dx + \frac{1}{2}dy + \frac{1}{2}dz = d$$

$$\frac{1}{2}x + \frac{1}{2}y + \frac{1}{2}z = 1$$

2. Find the intersection of the line

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

and the plane

$$x + y + z = 14$$

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

$$6t + 2 = 14$$

$$t = 2$$

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

$$r(2) = \langle 1, 1, 0 \rangle + \langle 0, 4, 8 \rangle$$

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

Intersection:

$$(1, 5, 8)$$