Ex 2 Fall 2000 241

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PRINT Your Name:_____

There are 10 problems on 5 pages. Each problem is worth 10 points. SHOW your work. *CIRCLE* your answer. **NO CALCULATORS!**

1. **(There is no partial credit for this problem. Make sure your answer is correct.)** Find the equation of the plane through $(1,-3,2)$, $(4,5,1)$, and $R=(-1,2,-3)$.

P= Q=

$\vec{PQ} \times \vec{PR} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 3 & 8 & -1 \\ -2 & 5 & -5 \end{vmatrix} = -35\vec{i} + 17\vec{j} + 31\vec{k}$

$-35(x-1) + 17(y+3) + 31(z-2) = 0$

$-35x + 17y + 31z = -24$

2. **(There is no partial credit for this problem. Make sure your answer is correct.)** Find the equations of the line through $(4,7,9)$ and $(1,-2,6)$.

P// Q//

$\vec{PQ} = -3\vec{i} - 9\vec{j} - 3\vec{k}$

$\begin{cases} x = 4 - 3t \\ y = 7 - 9t \\ z = 9 - 3t \end{cases}$