241 Fall 1997 final

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PRINT Your Name:_____

There are 19 problems on 8 pages. Problems 1 and 2 are worth 7 points each.
Each of the other problems is worth 8 points. SHOW your work. $\boxed{CIRCLE}$ your
answer. **NO CALCULATORS!** CHECK your answer, whenever possible.

1. **(There is no partial credit for this problem. Make sure your answer
is correct.)** Find the equation of the plane through $(3,2,1)$, $(2,3,5)$, and
$R=(4,6,7)$.
$P=$ $Q=$

$$\vec{PQ} \times \vec{PR} = \begin{vmatrix} \hat{\imath} & \hat{\jmath} & \hat{z} \\ -1 & 1 & 4 \\ 1 & 4 & 6 \end{vmatrix} = -10\hat{\imath} + 10\hat{\jmath} - 5\hat{z}$$

The plane is

$-10(x-3) + 10(y-2) - 5(z-1) = 0$

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

$\boxed{2x - 2y + z = 3}$