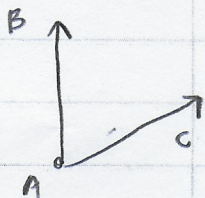#9) Write the equation of the plane, in general form, determined by the points $A(1,-5,4)$ $B(2,2,1)$ and $C(4,0,-7)$. (4pts)

$\vec{AB}$ $\langle 1, 7, -3 \rangle$

$\vec{AC}$ $\langle +3, +5, -11 \rangle$

$$\begin{vmatrix} i & j & k \\ 1 & 7 & -3 \\ 3 & 5 & -11 \end{vmatrix} \quad \begin{matrix} -77+15 & -62 \\ -11+9 & -2 \\ 5-21 & -16 \end{matrix}$$

$\langle -62, -2, -16 \rangle$

$-62(x-1) - 2(y+5) - 16(z-4) = 0$

$-62x + 62 - 2y - 10 - 16z + 64 = 0$

$\boxed{-62x - 2y - 16z + 116 = 0}$

$\begin{matrix} +62 \\ -10 \\ +64 \end{matrix}$

#10) Calculate the distance from the point $Q(-1, 3, 6)$ to the plane $2x - 3y + z - 1 = 0$. (4pts)

$\dfrac{|\vec{PQ} \cdot N|}{\|N\|}$

$Q(-1, 3, 6)$ $\vec{PQ} = \langle -3, 3, 6 \rangle$

$P(2, 0, 0)$

$N \langle 2, -3, 1 \rangle$

$\vec{PQ} \cdot N = -3 \cdot 2 + 3 \cdot -3 + 6 \cdot 1$

$-6 - 9 + 6 = -9$

$\sqrt{4+9+1} = \sqrt{14}$

$\boxed{\dfrac{+9}{\sqrt{14}}}$ $\boxed{\sim 2.4}$