H.W # 2

Exc.1 $P_1 : 2x - y + 2z = 5$, $P_2 : -4x + 2y - 4z = 7$

Show $P_1 \parallel P_2$. Find the distance between P_1 & P_2

Exc.2 Let $L : \frac{x-1}{2} = \frac{y+1}{5} = 2 - z$

$P : 4x - 2z + 10y = 11$

Show that $L \perp P$.

Exc.3 : Let $A(1, 2, 3)$, $B(-1, 1, 4)$, $C(-1, 1, 0)$

Find the equation of the plane passing through A, B, C.

Find also the intercepts of the plane, i.e the x-intercept, y-intercept and the z-intercept of the plane.

Exc.4 $L_1 : \frac{x-1}{2} = \frac{y}{3} = z - 5$

$P : 2x - y - z = 7$.

Show $L_1 \parallel P_2$.

Exc.5 : Find the point of intersection between the line

$L : x = 2 + 3t, y = -4t, z = 5 + t$ and the plane

$P : 4x + 5y - 2z = 18$

Exc.6 : Let $L_1 : x = 2t + 1, y = t - 1, z = 3t$

$L_2 : x = 3t, y = 2t - 1, z = t - 4$

1) Show that L_1 & L_2 are intersect and find their point of intersection.

2) Find the acute angle between L_1 & L_2.

Exc.7 : Identify and sketch the surface $y^2 + 4z^2 + 16x - 2y = -1$