

Subject

Session 89

Year

Month

Date

IP

$$P_{\text{on}} + \cancel{Q} dy + \cancel{R} dz$$

$$\begin{matrix} P_{\text{on}} \\ Q_{\text{on}} \\ R_{\text{on}} \end{matrix}$$

$$\begin{matrix} \cancel{P} \\ \cancel{Q} \\ \cancel{R} \end{matrix}$$

$$M_y = 2yz = N_x$$

$$M_z = y^2 = P_x$$

$$N_z = 2xy = P_y$$

✓

$$P_{\text{on}}$$

$$\cancel{A} y$$

$$\cancel{A} z$$

$$\cancel{A} x$$

$$\cancel{A} z$$

$$P_{\text{on}}$$

$$P_y$$

Potential:

$$f_x = M = y^2 z \Rightarrow f = \frac{1}{2} y^2 z + C$$

$$\Rightarrow f = \frac{1}{2} y^2 z + g(y, z)$$

$$\Rightarrow f_y = 2xy z + g_y(y, z)$$

$$= N = 2xy z$$

$$\Rightarrow g_y(y, z) = 0$$

$$\Rightarrow g(y, z) = \frac{1}{2} y^2 + h(z)$$

$$\Rightarrow f = \frac{1}{2} y^2 z + \frac{1}{2} y^2 + h(z)$$

$$\Rightarrow f_z = \frac{1}{2} y^2 + h'(z)$$

$$= P = \frac{1}{2} y^2 \Rightarrow h'(z) = 0$$

$$\Rightarrow h(z) = C$$