Q1) Use implicit differentiation to find $\frac{\partial z}{\partial x}$, $\frac{\partial z}{\partial y}$ from equation $xyz = \tan(x + y + z)$. 

Q2) $u = \ln(x^2 + y^2 + z^2), x = r \cos \theta, y = r \sin \theta, z = 2r$. Find $\frac{\partial u}{\partial r}, \frac{\partial u}{\partial \theta}$ when $r = 1, \theta = \frac{\pi}{2}$. 

Q3) Find linear approximation to $z = x^2 + 8y^2 - 3x + 6y - 12$ at $P(2,1,0)$.