Math 301-101 Sec: 02 & 03 Quiz 1 (A)

Name:.....ID#:.....Ser:.....

Q.1: Find tangent vector and equation of tangent line to the curve $\vec{\mathbf{r}}(t) = 3\cos t\ \hat{\imath} + 4\sin t\ \hat{\jmath}$

Q.2: Find the directional derivative of $f(x, y) = 4x + xy^2 - 5y$ at $(3, -1)$ in the direction of a vector with angle $\theta = \dfrac{\pi}{4}$.

Q.3: Find the curl and divergence of $\vec{\mathbf{F}}(x, y, z) = (x - y)^3\ \mathbf{i} + e^{-yz}\ \mathbf{j} + xye^{3y}\ \mathbf{k}$.