Math 302 Quiz No.1 (Section 4)

Name:_____ID_____Section_____

Q1. Express the vector function $\bar{r}(t) = 2\cos 3t\ \hat{i} + 2\sin 3t\ \hat{j} + \hat{k}$, in terms of "s". Show that the resultant tangent vector is a unit vector.

Q2. Given $f(x, y) = (x^2 + y^2)^{-3/2}$, check if it satisfies the (Laplace) equation $\frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} = 0$

Q3. Find directional derivative of $f(x, y) = x^2 - y^2 + xy$ at (2, 3) in the direction of (6, 7).