Math 201-141 Quiz 3

Name_____ Section___ Id_____
Serial#

Q1) Determine whether the following limits exist or not and find their value- if they exist.

a) $\lim_{(x,y)\to(0,0)} xcos(\frac{1}{y})$

b) $\lim_{(x,y)\to(1,1)} \left(\frac{x^2y-1}{x-1}\right)$

c) $\lim_{(x,y)\to(0,0)} \left(\frac{y^3x}{x^2+y^6}\right)$

Q2) If $w = \tan\left(\frac{x}{y}\right)e^{yz}, x = \ln(s+t), y = cos^{-1}\left(\frac{s}{t}\right), z = \sqrt{t-s}$

, find $\frac{\partial w}{\partial s}$ at $(s,t) = (0,1)$

(*Reminder:* $\frac{d}{dx}(tanx) = sec^2(x)$, $\frac{d}{dx}(cos^{-1}(x)) = \frac{-1}{\sqrt{1-x^2}}$)