**Dep.of Math. Quiz (1) M.204 , section 15721**

**Question (1): :** Find and sketch the largest local region of the xy- plane for which the initial value problem:

 $\sqrt{x^{2}-9} y^{'}=y tan^{-1}(x)$ $+x^{3} lny , y\left(4\right)=4, $ admits unique solution.

**Question(2):** a) Find the solution of the differential equation :

 $x y^{3} dx+\left(y+2\right)e^{-x}dy=0.$

 b) Find the general solution of the differential equation:

 $\left(3xy+3y-4\right)dx+(x+1)^{2}dy=0$, $x>-1.$