KFUPM Term (111) Name_____Serial#_____

MATH 201 Quiz # 3(a) ID#_____Section # 22

Time: 20 Minutes Marks: 9

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1) For $z = \tan^{-1}\left(\frac{2xy}{x^2-y^2}\right)$, show that $\frac{\partial z}{\partial x} = \frac{-2y}{x^2+y^2}$

2) Use implicit differentiation to find $\frac{\partial z}{\partial y}$ for the equation $yx^2 + 3z^2 - \cos xyz = 31$.

KFUPM Term (111) Name_____Serial#_____

MATH 201 Quiz # 3(b) ID#_____Section # 22

Time: 20 Minutes Marks: 9

Let $z = f(x, y) = \tan^{-1}(x + 2y)$

(i) Find linearization $L(x, y)$ of $f(x, y)$ at $(1,0)$

(ii) Find equation of the tangent plane to surface $z = f(x, y)$ at $(1,0,1)$.

(iii) Find differential of $z = f(x, y)$