

King Fahd University of Petroleum and Minerals

MATH-101

Dr. Ahmad Al-Dweik

Quiz 3

Name:-

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1. (6 points) If  $y = \tan^{-1}(\ln x \tan x)$ , then  $\left. \frac{dy}{dx} \right|_{x=\pi} =$

2. (4 points) If  $y = x^x + x^2 + 2^x$ , then  $\left. \frac{dy}{dx} \right|_{x=1} =$

(Hint: find the derivative of the term  $x^x$  separately)

3. (6 points) If  $\frac{\cos y e^y}{\sin x} = \frac{\cos x e^x}{\sin y}$ , then  $\frac{dy}{dx} \Big|_{(x,y)=(\frac{\pi}{4}, \frac{\pi}{4})} =$

4. (4 points) If  $u = e^{y^3+y}$  and  $x = u^3 + u$ , then  $\frac{dy}{dx} \Big|_{(x,y)=(2,0)} =$

(Hint: use the chain rule in Leibniz notation)