King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 101 Section 21 Quiz IV (Term 161)

Name : ..... **ID** #..... Serial #: .....

1. If the line $y = \dfrac{-1}{3}x + b$ is normal to the curve $y^2 = x^3$, then find b.

2. If $y = (\cos\ x)^{\sec\ x}$, then find $\dfrac{dy}{dx}$

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3. If $y = \tan^{-1} x + \cot^{-1}\left(\frac{1}{x}\right)$, then find y'

4. Find $\lim_{x \to 0} (1 + 2x)^{3/x}$

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5. If $f(x) = x\,e^x$ and n is a positive integer, then find $f^{(n)}(1)$

6. If $y = \tan^3(x^2)$, then find $y'\left(\frac{\sqrt{\pi}}{2}\right)$

7. If $y = t^2 - t + 2$ and $x = t^3 + t$, then find $\frac{dy}{dx}|_{t=1}$