KFUPM - Math Dept. - MATH 101
Quiz 4 (3.4 & 3.5 & 3.6) - Term 171 - Instructor**: Dr. Shadi Al-Omari**

Name:_____ **ID:**_____ **S.N.:** _____

Show all your work

Question1 :(2 pts**)** If $g(x) = \left(f(x^3)\right)^2$ and $f(8) = \frac{1}{4}$, $f'(8) = 2$, then $g'(2) =$

Question2 :(2 pts**)** Evaluate the following

(a) $\frac{d}{dx}[tan^{-1}(cot\, x)]$ **(b)** $\lim_{x\to+\infty}\left(1+\frac{5}{3x}\right)^x$

Question3 :(3 pts**)** Let $y^{lnx} = 2x\ lnx$, find $\frac{dy}{dx}$ $at\ x = e$.

Question4 :(3 pts**)** If $f(x) = x^3 - 3x^2 - 1, x \geq 2$, then find the value of $\frac{df^{-1}}{dx}$ $atx = -1$.