

Name:

ID #:

Sec#:

Serial#:

Q.1 [3pts] Use a linear approximation to estimate the value of $e^{-0.015}$

Q.2 [3pts] If $y = \tanh^{-1}\left(\frac{x-1}{x+1}\right)$, find $\frac{dy}{dx} + x\frac{d^2y}{dx^2}$.

Q.3 [4pts] Find the absolute maximum and absolute minimum values of $f(x) = 2\cos x + \sin 2x$ on the interval $[0, \pi/2]$

Q.1 [3pts] Use differentials to estimate the value of $e^{0.015}$

Q.2 [3pts] If $y = \coth^{-1} \left(\frac{x-1}{x+1} \right)$, find $\frac{1}{x} \frac{dy}{dx} + \frac{d^2y}{dx^2}$.

Q.3 [4pts] Find the absolute maximum and absolute minimum values of $f(x) = 2 \cos x + \sin^2 x$ on the interval $[-\frac{3\pi}{2}, \frac{\pi}{2}]$