Math 101-151-Class Test II

Name: ID Serial:

Show all your work. No credits for answers not supported by work

1) Find $\frac{dy}{dx}$ for the following

a) $y = \frac{e^{x+1}-e^{x}}{e^{x}}$

b) $y = \frac{1}{3}\tan^{-1}\left(\frac{x+1}{3}\right)$

c) $y = \log_3(x^2+1)$

2) If $f(x) = \log_{10}\sqrt[3]{\frac{x^2}{(x-1)^4}}$, then find $f'(2)$

3) If $f(x) = (8x-6)^x$, then find $f'(1)$

4) Find $\lim_{\theta\to\infty} \theta \sin\frac{1}{3\theta}$

5) Find the equation of the tangent line to the curve $y = x^2 - 4x + 19$ passes through $P(3,0)$.