King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 101 (131) - Quiz 5

Name: ID: Serial No.:

1. Newton's method is used to estimate the $x$-coordinate of the point of intersection of the curves $y = x^2(x+1)$ and $y = \dfrac{1}{x}$ $(x > 0)$. If we start with $x_0 = 1$, then find $x_1$

2. Find the dimensions of the rectangle of largest area that can be inscribed in a circle of radius $r$.

3. Find $y$ that satisfies: $\dfrac{dy}{dx} = \dfrac{\csc\theta}{\csc\theta - \sin\theta}; \quad y(0) = 1$

4. Evaluate $\lim\limits_{x\to\infty} (1+2x)^{(1/2\ln x)}$

5. Evaluate $\lim\limits_{x\to 1^+} \left(\dfrac{1}{x-1} - \dfrac{1}{\ln x}\right)$