

Serial No.: _____ Student Name: _____ Student Number: _____
Instructor: M. Z. Abu-Sbeih Math 101- Q4 A Date: 29-12-2008

Problem 1: (6 points) Find the equation of the line which is tangent to the curve $y = \ln x$ and passes through the origin.

Problem 2: (6 points) If $y = (1 + \cos x)^x$, find $y'(0)$.

Problem 3: (6 points) If $y = \operatorname{sech}(\tanh^2 x) + \sin(\operatorname{csch} x)$ find y' .

Problem 4: (7 points) A ladder 10 ft long rests against a vertical wall. If the bottom of the ladder slides away from the wall at a speed of 2 ft/sec, how fast is the angle between the ladder and the wall changing when the angle is $\frac{\pi}{4}$ radians.

Serial No.: _____ Student Name: _____ Student Number: _____
Instructor: M. Z. Abu-Sbeih Math 101- Q4B Date: 29-12-2008

Problem 1: (6 points) Find the equation of the line which is tangent to the curve $y = e^x$ and passes through the origin.

Problem 2: (6 points) If $y = (1 + \sin x)^x$, find $y'(0)$.

Problem 3: (6 points) If $y = \tanh(\operatorname{sech}^2 x) + \operatorname{csch}(\sin x)$ find y' .

Problem 4: (7 points) A ladder 10 ft long rests against a vertical wall. If the bottom of the ladder slides away from the wall at a speed of 2 ft/sec, how fast is the angle between the ladder and the ground changing when the angle is $\frac{\pi}{4}$ radians.