Department of Mathematics and Statistics KFUPM
MATH 101-09 Quiz#5, Time: 40 mins

Student's Name: _____ ID: _____Section No: _____

Q.No.1:- The exact area of a square is 9 cm^2. Its side length is measured with an error of 0.008 cm. Estimate the error in the calculated area of the square.

Final Answer (**1 point**): _____

Work Shown (**5 points**):

Q.No.2:- Find the slope of the tangent line to the graph of $\tanh(x+y)+x\cosh y=0$ at the point $(0,0)$.

Final Answer (**1 point**): _____

Work Shown (**5 points**):

Q.No.3:- Suppose $f\left(x\right)=x^{a}\left(1-x\right)^{b}$, where $0\leq x\leq 1$ and both a and b are positive numbers. Find the maximum value of f. (Hint: Use the concept of absolute extrema)

Final Answer (**2 point**): _____

Work Shown (**5 points**):

Q.No.4:- A rectangular field will be bounded on one side by a river and on the other three sides by a plastic wire. If the length of the wire used is 100 m, then find the maximum area of the rectangular field.

Final Answer (**1 point**): _____

Work Shown (**5 points**):

With Best Wishes