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 \( f(x) = x^a (1-x)^b \), 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):