

MAT 1339 A Assignment 2 (Due TUE. NOV. 2nd, 11:30) Student Number:

Name:

Problem 1: Find the equation of the tangent line to the graph of $f(x) = x^2 \sin(2x)$ at $x = \pi$.

Work:

Problem 2: Using the rules of differentiation find the derivative of $g(x) = \frac{\cos(2x)+x-2}{\sin(2x)}$.

Work:

Problem 3: If $g(x) = 5 \sin(4 \cos(3x))$ find the derivative of $g(x)$.

Work:

Problem 4: If $f(x) = ax^3 + bx^2 + cx + d$ find the values of a, b, c, d such that:

$(0, 1)$ is a point of inflection for f ;

$(2, 6)$ is a local maximum.

Work:

Problem 5: If $f(x) = 6x^2 - 11x - x^3$ find the critical numbers. Then find the absolute maximum and minimum values on the interval $0 \leq x \leq 4$.

Work:

Problem 6: Let $g(x) = \frac{7x-3}{9-6x+x^2}$. Find all vertical asymptotes, horizontal asymptotes (if any).

Work: