MATH 1210-90 Fall 2011

Second Midterm Exam

INSTRUCTOR: H.-PING HUANG

LAST NAME _____

FIRST NAME _____

ID NO. _____

INSTRUCTION: SHOW ALL OF YOUR WORK. MAKE SURE YOUR ANSWERS ARE CLEAR AND LEGIBLE. USE **SPECIFIED** METHOD TO SOLVE THE QUESTION. IT IS NOT NECESSARY TO SIMPLIFY YOUR FINAL ANSWERS.

PROBLEM 1	20	_____
PROBLEM 2	20	_____
PROBLEM 3	20	_____
PROBLEM 4	20	_____
PROBLEM 5	20	_____
TOTAL	100	_____

PROBLEM 1

(20 pt) Find the following values.

(a) $\lim_{h \to 0} \dfrac{(5+h)^2 - 25}{h}$

(b) $\lim_{x \to 4} \dfrac{\frac{2}{x} - \frac{2}{4}}{x - 4}$

PROBLEM 2

(20 pt) Let

$$f(x) = (x + 6)(x^2 - 4).$$

Find $f''(x)$. For what value of x is $f''(x) = 0$?

PROBLEM 3

(20 pt) Let $f(x) = (\cos 8x + 9)^{10}$. Find $f'(x)$.

PROBLEM 4

(20 pt) Suppose you need good approximations to $\sqrt{4.1}$ and $\sqrt{8.8}$, but your calculator has died. What might you do?

PROBLEM 5

(20 pt) Find the equation of the tangent line to the curve

$$y^3 - xy^2 + \cos xy = 2$$

at the point $(0, 1)$.