Name:

Math 1710 Exam 3

Show all work (i.e., work things out on paper, not in your head).

4. Use the tangent line to a graph, or differentials, to approximate the value of

$(69)^{\frac{1}{3}}$, knowing that $(64)^{\frac{1}{3}} = 4$. (15 pts.)

1. Find the following definite and indefinite integrals (9 pts. each):

(a) $\displaystyle\int (x^2+1)(x-2)\ dx$

(b) $\displaystyle\int x(1-2x^2)^{\frac{2}{3}}\ dx$

(c) $\displaystyle\int_0^2 x^3 - 5x + 3\ dx$

(d) $\displaystyle\int \sec^4 x \tan x\ dx$

(e) $\displaystyle\int_1^3 \frac{x}{\sqrt{x^2+1}}\ dx$

2. (15 pts.) Find the area of the region lying between the graphs of

$$f(x) = x^2 - 3x + 8 \text{ and } g(x) = 3x$$