This assignment is due by 11 am on April 13, 2007. You can turn it in to me in class or drop it by the office, Blocker 640D. Be sure that you follow the homework rules; they can be found on your syllabus. Please work the problems in the order that they are listed.

1. Find these integrals.
   (a) \[ \int (12x^2 + 10)(2x^3 + 5x + 5)^9 \, dx \]
   (b) \[ \int \frac{8x^2}{\sqrt{x^3 + 2}} \, dx \]

2. Find these integrals.
   (a) \[ \int (x^3 + 2) \cos(x^4 + 8x) \, dx \]
   (b) \[ \int \frac{3e^{3x} - 2e^{-2x}}{e^{3x} + e^{-2x}} \, dx \]

3. Compute the following.
   (a) \[ \int_0^A 4e^{2x} - 10 \sin(2x) \, dx = \]
   (b) \[ \int_B^5 \frac{7}{x} - \frac{2}{x^2} \, dx = \]

4. Compute \[ \int_1^B x^2e^{x^3 + 2} \, dx = \]

5. If \( x \) is the number of years from 1990, then the population growth of a city, in millions per year, can be modeled by the formula \( 1.5e^{25x} \). Find a formula that gives the population of the city \( A \) years after 1990, i.e. \( P(A) = \).

6. Use the graph of \( f'(x) \) and the following information to find the coordinates, \((x, y)\), of the following. Assume that \( f(0) = 20 \) and that the areas for the three regions are as given: Region A = 132, Region B = 180 and Region C = 200.
   (a) local minimum(s) of \( f(x) \)
   (b) local maximum(s) of \( f(x) \)