This assignment is due by 3:30 pm on TUESDAY, April 21, 2009 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.

You will not have these papers back before the exam. I will post solutions on Tuesday evening. If you want to check your answers, be sure that you make a copy of your work.

1. Estimate the following definite integrals using 5 rectangles with equal bases and the indicated method.

    (a) $\int_{1}^{11} x^2 + 2x \ dx$, midpoint method.

    (b) $\int_{0}^{2} 5x + 3 \ dx$, left endpoint.

    (c) $\int_{3}^{8} x^3 \ dx$, right endpoint.

2. Compute these integrals.

    (a) $\int_{1}^{A} 18(3x + 4)^5 \ dx$

    (b) $\int_{0}^{J} 6x^2 e^{x^3} \ dx$

3. Compute the following if $f(x) = \begin{cases} 3x - 5 & \text{if } x > 2 \\ x^2 - 3 & \text{if } x \le 2 \end{cases}$

    (a) $\int_{-2}^{1} f(x) \ dx =$

    (b) $\int_{0}^{5} f(x) \ dx =$

4. Compute the following to at least 4 decimal digits.

    (a) $\int_{-4}^{3} e^{-x^2} \ dx =$

    (b) $\int_{1}^{8} \frac{4x^3 + 9x + 2}{x^4 + 4x^2 + 50} \ dx =$

5. Find the area between these functions on the given intervals.

    (a) $y = xe^{(x^2)}$ and the x-axis($y = 0$) on $[-1, 2]$

    (b) $y = x^3$ and $y = (x + 3)^{(1/3)}$ on $[-1, 5]$

6. Find the area bounded by $y = e^{(x-3)}$ and $y = 2x + 1$.

7. The profit function, in dollars, for a video game company is given by $P(x) = -0.001x^3 + 15x^2 - 3x - 6000$ where x is the number of video games in thousands. NOTE: Part A and Part B are not the same question.

    (a) Find the average profit on the interval from where 25,000 to 45,000 games are sold.

    (b) Find the average profit if 70,000 games are sold. Give your answer in dollars/thousand items.