Honors Calc. I. Homework Set #12 Due 11/21/07 Name:_____

1. §5.2, p.311, #26

(a) Find an approximation to the integral $\int_0^4 (x^2 - 3x)\,dx$ using a Riemann sum with right endpoints and $n = 8$.

(b) Draw a diagram like Figure 3 to illustrate the approximation in part (a).

(c) Use Theorem 4 to evaluate $\int_0^4 (x^2 - 3x)\,dx$

(d) Interpret the integral in part (c) as a difference of areas and illustrate with a diagram like Figure 4.

2. §5.2, p.311 #38: Evaluate $\int_{-1}^3 (3 - 2x)\,dx$ by interpreting it in terms of areas.

3. §5.3, p.321, #28: Use the Fundamental Theorem of Calculus to evaluate $\int_0^1 (3 + x\sqrt{x})\,dx$.

4. §5.3, p.322, #36: Use the Fundamental Theorem of Calculus to evaluate $\int_{-2}^2 f(x)\,dx$, where $f(x) = \begin{cases} 2 & \text{if } -2 \le x \le 0 \\ 4 - x^2 & \text{if } 0 < x \le 2 \end{cases}$.

5. §5.3, p.322, #50: Find the derivative of $y = \int_{\cos x}^{5x} \cos(u^2)\,du$.