NAME: _____

MATH 12002 **HOMEWORK #6 (19 pts)** **SPRING 2009**

SHOW ALL WORK FOR FULL CREDIT — PLEASE CIRCLE YOUR FINAL ANSWER

DUE: TUESDAY, MARCH 31 AT THE BEGINNING OF CLASS

1. (2 pts each) Find the most general antiderivative for each f.

   (a) $f(x) = x^{4/9} + 2x^{-1/3} - 7x^9$.

   (b) $f(x) = 5x^{3/4} - \dfrac{5}{x^7} - 6\sqrt[3]{x}$

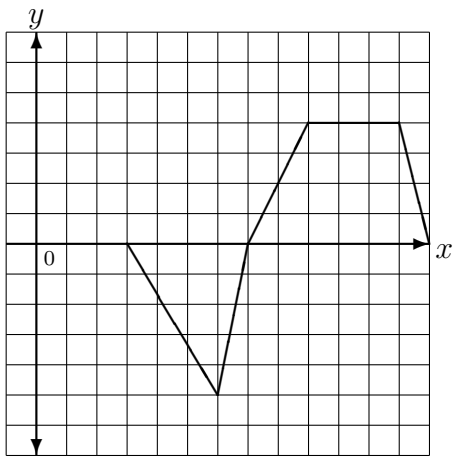
   (c) $f(x) = 3\sin x - \sec^2 x + 5\csc x \cot x$

   (d) $f(x) = \dfrac{7x^4 - 3x^3 + 8x^2 - 9}{5x^2}$

Homework Score: Course Grade:

$\overline{19}$ $\overline{478}$ =

2. (1 pt each) The graph of f is given below. Evaluate each integral by interpreting it in terms of areas.



(a) $\int_0^3 f(x)\,dx =$

(b) $\int_3^7 f(x)\,dx =$

(c) $\int_7^{13} f(x)\,dx =$

(d) $\int_0^{13} f(x)\,dx =$

(e) $\int_9^{12} f(x)\,dx =$

3. (3 pts) Find f if $f''(x) = 12x^2 + 6x - 4,\ f(0) = 5$ and $f(1) = 6$.

4. (3 pts) A particle is moving with the given data. Find the position of the particle.

$$a(t) = 10 + 3t - 3t^3, \quad s(0) = 0, \quad s(2) = 10.$$