Math 1312 Spring 2007

Calculus II

First Midterm Exam

Tuesday, February 6, 7:00 PM - 9:00 PM

Your name (please print):

Instructions: Other than a single 8.5" × 11" page of handwritten notes, this is a closed book, closed notes exam. **Use of calculators is not permitted.** You must justify all of your answers to receive credit. Notation is important, and points will be deducted for incorrect use. Please do all of your work on the paper provided.

The Honor Code requires that you neither give nor receive any aid on this exam.

If you are bound by the Academic Honor Code, please indicate that you have read and understood these guidelines by signing your name in the space provided:

Pledged: _____

Do not write below this line

Problem	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Points	10	10	10	10	10	10	10	10	10
Score									

Total:_____

Problems 1 - 8: Evaluate the indefinite integral.

1. $\displaystyle\int \frac{2x^4 - x^3 + 15x^2 - 6x + 21}{x^3 + 7x}\,dx$

2. $\displaystyle\int \frac{\sin \pi\theta}{\cos^2 \pi\theta + 1}\,d\theta$

3. $\displaystyle\int \sqrt{x} \ln x\,dx.$

4. $\displaystyle\int \frac{1}{\sqrt{4x^2 - 12x + 5}}\,dx \quad (x > 5/2)$

5. $\displaystyle\int \cot^3 t \csc^{\frac{4}{3}} t\,dt$

6. $\displaystyle\int x^5(x^3 - 2)^{1/3}\,dx$

7. $\displaystyle\int \cos\theta \csc^2\theta\,d\theta.$

8. $\displaystyle\int \frac{1}{(9x^2 + 1)^{5/2}}\,dx$

9. The region in the xy-plane enclosed by the curves $y = 2x$ and $y = x^2 - x$ is rotated about the y-axis to produce a solid object. Find the volume of this object.