

Name : \_\_\_\_\_

**Exam 2 Honor's Calculus II March 3, 2006**

**I. Evaluate the following improper integrals. State whether the integral converges or diverges.**

(1)  $\int_{1/2}^1 \frac{dx}{\sqrt{1-x^2}}$

12 pts

(2)  $\int_2^{\infty} \frac{dx}{x\sqrt{\ln x}}$

12 pts

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II. Evaluate the following integrals. Partial Credit will be given only for application of appropriate methods.

(1)  $\int \frac{dx}{x\sqrt{9-x^2}}$

12 pts

(2)  $\int \frac{x^3}{\sqrt{x^2-1}} dx$

12 pts

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(3)  $\int e^{\sqrt{x+3}} dx$

12 pts

(4)  $\int \sqrt{5 - 4x - x^2} dx$

12 pts

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$$(5) \int \frac{3x^2 + 2x + 72}{x(x^2 + 36)} dx$$

12 pts

$$(6) \int \frac{x^2 - 5x + 8}{x(x - 2)^2} dx$$

12 pts

**III. Find the general form of the following integral, without finding all necessary constants**

$$(1) \int \frac{6x^6 - 9x^5 + 17}{(x + 1)^2(2x - 1)(x^2 + 4x + 13)} dx$$

6 pts

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