CALCULUS II; SPRING 2005

Name:_____

Student Number:_____

You must show your work and give reasons for your answers!
Good luck.

Evaluate the following integrals:

1. $\int \frac{x^5+3x^2-4}{x^2}\,dx$

2. $\int_0^{\pi} x^3 \sin(3x^4+7)\,dx$

3. $\int x^2 \ln(x)\,dx$

4. $\int e^x \sin(x)\,dx$

5. Set up a Riemann sum to approximate the integral

$$\int_0^3 x\cos(x)\,dx$$

using 4 terms. You do NOT need to compute the sum of the terms.

6. How many terms are required to approximate the integral $\int_1^3 \sin(x)\,dx$ using Simpson's rule with an error less than 10^{-7}?

7. $\int \frac{\cos(\theta)}{\sin^2(\theta)+\sin(\theta)-2}\, d\theta$

8. $\int \sin^4(\theta)\, d\theta$

9. $\int \frac{x}{\sqrt{a^2-x^2}}\, dx$

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You must show your work and give reasons for your answers!
Good luck.

Evaluate the following integrals:

1. $\int \sqrt{x}(x^2 - x^5)\,dx$

2. $\int_1^2 x^5 \ln(2x^6 + 9)\,dx$

3. $\int x^2 \sin(x)\,dx$

4. $\int \arctan(x)\,dx$

5. Set up a Riemann sum to approximate the integral

$$\int_1^2 x \ln(x)\, dx$$

using 5 terms. You do NOT need to compute the sum of the terms.

6. How many terms are required to approximate the integral $\int_2^3 \ln(x)\, dx$ using Simpson's rule with an error less than 10^{-7}?

7. $\int \frac{e^t}{e^{2t}-e^t-6}\,dt$

8. $\int \sin^4(\theta)\,d\theta$

9. $\int \frac{1}{4+x^2}\,dx$