MATH 17 – PRACTICE EXAM
MIDTERM I

Name:_____

NO CALCULATORS

1. Compute the following integral.

$$\int x \ln x \, dx$$

2. Compute the following integral.

$$\int_0^{\sqrt{3}} x^3 \sqrt{x^2+1} \, dx$$

3. Compute the following integral.

$$\int \frac{1}{(4x^2+9)^{3/2}}\,dx$$

4. Compute the following integral.

$$\int \frac{2-4x}{(x^2+1)(x-1)^2}\,dx$$

5. Determine whether the following integral converges or diverges. If it converges, find its value.

$$\int_0^{\pi} \frac{1}{\cos^2 \theta}\, d\theta$$

6. Use the trapezoid rule and 4 subintervals to estimate the following integral. Then use Simpson's rule and 4 subintervals to estimate the same integral.

$$\int_{-\pi/2}^{\pi/2} \cos t\, dt$$