Week #1 Written Assignment: Due on Friday, May 22.

1. Evaluate the definite integral. $(a > 0)$

$$\int_0^a x^3 \sqrt{a^2 - x^2}\, dx$$

2. Evaluate the definite integral.

$$\int_4^9 \frac{\ln(y)}{\sqrt{y}}\, dy$$

3. Evaluate the integral.

$$\int x \sin^3(5x)\, dx$$

4. Evaluate the integral.

$$\int \tan^2(x)\, \sec(x)\, dx$$

5. Evaluate the integral.

$$\int \cos(x)\, \cos(4x)\, dx$$