Chapter 7.1: More Substitutions
Calculus II
Spring 2021
College of the Atlantic

Find the following anti-derivatives:

$$\int t^2 \sqrt{t^3 + 4}\, dt \tag{1}$$

$$\int \frac{t^2}{t^3 + 4}\, dt \tag{2}$$

$$\int (t^3 + 4)^2\, dt \tag{3}$$

$$\int \frac{1}{2x}\, dx \tag{4}$$

Do integral (4) two ways: 1) using the substitution $u = 2x$ and 2) pulling the 1/2 out front and then integrating. Do you get the same answer?

Evaluate the following definite integrals:

$$\int_1^4 x\sqrt{x^2 + 2}\, dx \tag{5}$$

$$\int_0^1 \cos(\pi x)\, dx \tag{6}$$

$$\int_1^2 2xe^{x^2}\, dx \tag{7}$$

$$\int_1^2 e^{x^2}\, dx \tag{8}$$

$$\int_{-5}^0 \frac{x}{(1 + x^2)^2}\, dx \tag{9}$$