

HW 4: Section 4.5 and 4.6

Due: Monday, September 16th in SQRC by 9pm

Learning Goals:

- Use the Fundamental Theorem of Calculus, Part I, to compute the integral of a function.
- Use u -substitution to solve integrals.

Questions:

1. Problem 4.5.8. Evaluate $\int_0^2 \frac{e^{2x} - 2e^{3x}}{e^{3x}} dx$.
2. Problem 4.5.12. Evaluate $\int_0^{\pi/4} \sec^2(x) dx$.
3. Problem 4.5.18. Evaluate $\int_0^t \sin^2(x) + \cos^2(x) dx$.
4. Problem 4.6.6. Evaluate $\int \sqrt{1 + 10x} dx$.
5. Problem 4.6.14. Evaluate $\int \frac{\cos(1/x)}{x^2} dx$.
6. Problem 4.6.28. Evaluate $\int \frac{t^2}{(t+3)^{1/3}} dx$.
7. Problem 4.6.36. Evaluate $\int_0^2 \frac{e^x}{1+e^x} dx$.
8. Evaluate $\int_0^1 \frac{x^2}{1+x^6} dx$.