Lesson 34: Section 5.5 Part 2

Integration by Substitution

- Choose u to be the part of the integral whose derivative is a constant multiple of another part.
- If your integral gets messy/complicated after one substitution, revisit your choice of u and try another one

Practice Problems

1. Compute each of the following integrals.

(a) $\int \frac{\sqrt{3+\sqrt{x}}}{\sqrt{2x}}\,dx$

(b) $\int_0^{\ln(\sqrt{2})} \frac{1+\cos(e^{-2x})}{e^{2x}}\,dx$

(c) $\int_0^1 \frac{dx}{\sqrt{e^x}}$

2. Evaluate the following integral in two ways, each with a different choice of u:

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

Do both ways give the same answer? Are both answers correct?