

Section 7.1

In this section, we evaluate integrals using integration by parts. Here is the formula:

$$\int u \, dv = uv - \int v \, du.$$

The “trick” for using this technique correctly is to choose the dv properly - dv should be the derivative of something times dx . The dv should also take up as much as possible of the integrand.

Exercise 1. Evaluate the following integrals:

- (a) $\int x \tan^{-1} x \, dx.$
- (b) $\int x^2 e^x \, dx.$
- (c) $\int e^x \cos x \, dx.$

Class Exercise 1. Evaluate the following integrals:

- (a) $\int \sqrt{x} \log_2 x \, dx.$
- (b) $\int (x + 5) \csc^2 4x \, dx.$
- (c) $\int e^{3x} \cos 2x \, dx.$
- (d) $\int \cot^{-1} 3x \, dx.$
- (e) $\int \cos(\ln x) \, dx.$
- (f) $\int \sec^3 x \, dx.$

Homework: 3-19 (every 4th), 25-45 (every 4th)