

Integration by Parts

Let's review how to use the Integration by Parts formula:

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

Remember, the goal is to turn an integral $\int u \, dv$ that you *can't* do into an integral $\int v \, du$ that you *can* do.

Ex 1.

$$\int x^2 e^x \, dx$$

Tabular Integration

Ex 2.

Here's a quick way to do integration by parts multiple times:

$$\int x^2 e^x \, dx$$

Ex 3.

$$\int \ln x \, dx$$

Ex 4.

$$\int e^x \cos x \, dx$$