

Integration by parts

Integration by parts is a technique for integrating a product of functions. It states that if u and v are functions, then

$$\int u \frac{dv}{dx} dx = uv - \int v \frac{du}{dx} dx.$$

This follows by integrating the product rule for differentiation,

$$\frac{d}{dx}(uv) = \frac{du}{dx}v + u \frac{dv}{dx}.$$