



integration points















# integration by parts

Suppose we have two function  $u(x)$  and  $v(x)$ . Then the product rule states

$$\frac{d}{dx}(uv) = u'v + uv'$$

Rearranging gives

$$uv' = \frac{d}{d(x)}(uv) - u'v$$

Integrating both sides gives

$$\begin{aligned}\int uv' dx &= \int \frac{d}{d(x)}(uv) - \int u'v dx \\ &= uv - \int u'v dx\end{aligned}$$

integration by parts