

Integration by parts.

product rule: $(F \cdot g)' = F'g + g'F$

integrate: $F \cdot g = \int F'g \, dx + \int g'F \, dx$

$$\begin{array}{ll} u = F & v = g \\ du = F' \, dx & dv = g' \, dx \end{array}$$

substitute: $u \cdot v = \int v \, du + \int u \, dv$

rearrange:

$$\boxed{\int u \, dv = uv - \int v \, du}$$

Use when you have 2 different functions multiplied