

$$\int x \cos(-2x) dx$$

u dv

$$u = x$$
$$du = dx$$

$$v = -\frac{1}{2} \sin(-2x)$$
$$dv = \cos(-2x) dx$$

$$x \left(-\frac{1}{2}\right) \sin(-2x) - \int -\frac{1}{2} \sin(-2x) dx$$
$$-\frac{1}{2} x \sin(-2x) + \int \frac{1}{2} \sin(w) \left(-\frac{1}{2}\right) dw$$

$$-\frac{1}{2} x \sin(-2x) + \frac{1}{2} (+\cos w) \left(+\frac{1}{2}\right) + C$$

$$= -\frac{1}{2} x \sin(-2x) + \frac{1}{4} \cos(-2x) + C$$

$$\int \cos(-2x) dx$$

$w = -2x$
 $dw = -2 dx$

$$\int \cos(w) \left(-\frac{1}{2}\right) dw \quad -\frac{1}{2} dw = dx$$

$$\sin(w) \left(-\frac{1}{2}\right)$$

$$= -\frac{1}{2} \sin(-2x)$$