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$$\text{Let } u = x, \quad \frac{dv}{dx} = \cos 2x$$

$$v = \frac{1}{2} \sin 2x$$

$$\int x \cos 2x \, dx = \frac{1}{2} x \sin 2x - \int \frac{1}{2} \sin 2x \, dx$$

$$\frac{1}{2} x \sin 2x + \frac{1}{4} \cos 2x + c$$

M1**3.1a**

$$\text{Parts with } u = x, \quad \frac{dv}{dx} = \cos 2x$$

M1**1.1**

Allow if $-\left[\frac{1}{2} x \sin 2x - \int \frac{1}{2} \sin 2x \, dx\right]$
or if 1 error

A1**2.5**

+c needed for A1

[3]