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(b).

(i). $\int 3x \sin 5x \, dx$

$\uparrow \quad \quad \uparrow$
 $u \quad \quad \frac{dv}{dx}$

$$\frac{du}{dx} = 3$$

$$v = -\frac{1}{5} \cos 5x$$

$$\text{equation} = uv - \int v \frac{du}{dx} \, dx$$

$$\therefore \underline{\underline{-\frac{3}{5} \cos 5x - (3) \times (-)}}$$

$$\therefore -\frac{3}{5} x \cos 5x + \frac{3}{5} \cos 5x \, dx$$

$$\therefore -\frac{3}{5} x \cos 5x + \frac{3}{5} \sin 5x \, dx$$

(ii). $\int x \cos \frac{x}{2} \, dx$

$\uparrow \quad \quad \uparrow$
 $u \quad \quad \frac{dv}{dx}$

$$\frac{du}{dx} = 1$$

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

$$\text{equation} = uv - \int v \frac{du}{dx} \, dx$$

$$\therefore \underline{\underline{x 2 \sin \frac{x}{2} + 4 \cos \frac{x}{2} + C}}$$