

b

$$(i) = \frac{6(3x \sin(3x) + \cos(3x))}{9} + C$$

$$(ii) \int_1^2 3xe^{2x} dx$$

$$\int x^2 dx$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} \text{ with } n=2$$

$$= \frac{x^3}{3}$$

$$3e^2 \cdot \int x^2 dx$$

$$= e^2 x^3$$

$$= e^2 x^3 + C$$

$$= 7e^2$$