

b)

i) $\int 2x \cos x \, dx$

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

integrate by Parts

$$x \sin(x) - \int \sin(x) \, dx$$

$$= 2x \sin(x) + 2 \cos(x)$$

$$= \underline{\underline{2x \sin(x) + 2 \cos(x) + C}}$$

ii

$$\int_1^2 5xe^x \, dx$$

remove constant

$$= 5 \int_1^2 xe^x \, dx$$

integration by Parts

$$= 5 [e^x x - \int e^x \, dx]_1^2$$

$$\int e^x \, dx = e^x = 5 [e^x x - e^x]_1^2$$

calculating for boundaries

$$= \underline{\underline{5e^2}}$$