

$$(iii) \int 3 \sec^2 x \, dx$$

$$3 \int \sec^2 x \, dx$$

$$3 \int \frac{1}{2} \tan^2 x \, dx$$

$$3 \times \frac{1}{2} \tan^2 x$$

$$\frac{3}{2} \tan^2 x + C$$

$$(iv) \int_2^3 x(x+1) + e^x \, dx$$

$$\text{let } u = x(x+1)$$

$$\int_2^3 x u + e^x \, dx$$

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

$$du = dx$$

$$\int_2^3 x u + e^x \frac{du}{1}$$

$$(iv) \int_0^4 (x+3)(x+2) \, dx$$

$$\int_0^4 x^2 + 2x + 3x + 6 \, dx$$

$$\int_0^4 \frac{x^3}{3} + \cancel{2x^2} + 3\frac{x^2}{2} + 6 \, dx$$

$$\left[\frac{x^3}{3} + x^2 + 3\frac{x^2}{2} + 6 \right]_0^4$$

$$= \left[\frac{(4)^3}{3} + (4)^2 + 3\frac{(4)^2}{2} + 6 \right] - \left[\frac{(0)^3}{3} + (0)^2 + 3\frac{(0)^2}{2} + 6 \right]$$

$$= 67.3 - 6 = 61.3$$