

Two

a.
i) $\int (x^2 - 6x)(3x^2 - x) \, dx$

$$\int -x^2 + 3x^4 - 18x^3 + 6x^2 \, dx$$

$$\int 3x^4 - 18x^3 + 5x^2 \, dx$$

$$\frac{3x^5}{5} - \frac{18x^3}{3} + \frac{5x^2}{2} + C$$

ii) $\int (x^2 + 3x)^2 + e^{0.5x} - \sin 2x \, dx$

$$(x^2 + 3x)(x^2 + 3x) = x^4 + 6x^3 + 9x^2$$

$$\int x^4 + 9x^2 + 6x^3 + e^{0.5x} - \sin 2x \, dx$$

$$\frac{x^5}{5} + \frac{9x^3}{3} + \frac{6x^4}{4} + 2e^{0.5x} - \frac{1}{2} \cos 2x + C$$

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

$$(2x^2 + 3)(2x^2 + 3) = 4x^4 + 12x^2 + 9$$

$$\int_0^3 (4x^4 + 12x^2 + 9)(2x^2 + 3)$$

$$8x^6 + 12x^4 + 24x^4 + 36x^2 + 18x^2 + 27$$

$$8x^6 + 36x^4 + 54x^2 + 27$$

$$\left[8x^6 + 36x^4 + 54x^2 + 27 \right]_0^3 - [0] =$$