

Question 3

$$\text{ai)} \int (x^5 - 2x)(5x^3 + 6x) dx$$

$$= \int (5x^8 + 6x^6 - 10x^4 - 12x^2) dx$$

$$= \frac{5x^9}{9} + \frac{6x^7}{7} - \frac{10x^5}{5} - \frac{12x^3}{3} + C$$

$$= \frac{5}{9} x^9 + \frac{6}{7} x^7 - 2x^5 - 4x^3 + C$$

$$\text{aii)} \int (e^{5x} + 1)(e^{3x} + 2) dx$$

$$= \int (e^{8x} + 2e^{5x} + e^{3x} + 2) dx$$

$$= \frac{1}{8} e^{8x} + \frac{2}{5} e^{5x} + \frac{1}{3} e^{3x} + 2x + C$$