

$$ii) \log(x+2) + \log(x+3) = 2\log(x+1)$$

$$(x+2)(x+3) = (x+1)(x+1)$$

$$x^2 + 3x + 2x + 6 = x^2 + x + x + 1$$

$$3x = -5$$

$$x = \frac{-5}{-3} \quad x = 1.67$$

Integrate the Following

$$6i) \int x^4 + 3x^2 - 3x + 1 \, dx$$

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

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

$$ii) \int (x-1)(x-3) \, dx$$

$$\int x^2 - 3x - x + 3 \, dx$$

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

$$= \frac{x^3}{3} - \frac{4x^2}{2} + 3x + C$$

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

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

$$3 \int \frac{1}{2} \tan 2x + C$$

$$\cancel{3 \int 0.02x + C} \rightarrow 3 \int 0.02x + C$$

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

$$\int_0^4 x^2 + 2x + 3x + 6 \rightarrow x^2 + 5x + 6$$

$$4 [4^2 + 5(4) + 6] - [6] = \underline{36} \text{ is the area}$$

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

$$\int_2^3 x^2 + x + e^x$$

$$[3^2 + 3 + e^3] - [2^2 + 2 + e^2] = \underline{18.70} \text{ is the area}$$

$$32.09$$

$$13.39$$