

ii) $\int (e^x + 1)(e^x - 1) dx$

~~$\int (e^x)^2 - e^x + e^x - 1 dx$~~
 ~~$\int e^{2x} dx$~~
 ~~$\frac{1}{2} e^{2x}$~~

$\int e^{2x} - 1 dx$

$= \frac{1}{2} e^{2x} - x + C$

iii) $\int_2^5 (x+2)^3 + x - 1 dx$

~~$(x+2)^3$~~

$\int_2^5 (x+2)(x+2)(x+2) + x - 1 dx$

$\int_2^5 (x^2 + 4x + 4)(x+2) + x - 1 dx$

$\int_2^5 (x^3 + 2x^2 + 4x^2 + 8x + 4x + 8) + x - 1 dx$

$\int_2^5 (x^3 + 6x^2 + 12x + 8) + x - 1 dx$

$\int_2^5 x^3 + 6x^2 + 13x + 7 dx$

$\left[\frac{x^4}{4} + \frac{6x^3}{3} + \frac{13x^2}{2} + 7x \right]_2^5$

$\left[\frac{(5)^4}{4} + 2(5)^3 + \frac{13(5)^2}{2} \right] - \left[\frac{(2)^4}{4} + 2(2)^3 + \frac{13(2)^2}{2} \right]$

$\left[156.25 + 250 + 162.5 \right] - \left[4 + 16 + 26 \right]$

$= 522.75$