

$$A = \int (n+1) e^n dn.$$

$$\left. \begin{array}{l} u = n+1 \\ u' = 1 \\ v' = e^n \\ v = e^n \end{array} \right\} \begin{array}{l} \alpha = -e^n(n+1) + \int e^n dn. \\ \alpha = -(n+1)e^n + e^n = ne^n. \end{array}$$

$$\boxed{\alpha = -n e^n}$$

$$y_p = \alpha(n) y_1(n) + \beta(n) y_2(n).$$

$$= (-ne^n) e^n + \left(\frac{n^2}{2} + n\right) e^{2n} + C.$$

$$= -\cancel{ne^{2n}} + \frac{n^2}{2} e^{2n} + \cancel{ne^{2n}} + C = \frac{n^2}{2} e^{2n}.$$

donc: $\boxed{y = y_p + y_h = \frac{n^2}{2} e^{2n} + \alpha e^n + \beta e^{2n}}$