$\cancel{\beta = -2\int}$

$$\int e^{-x}\sin x\,dx = -e^{-x}\cos x - e^{-x}\sin x - \int e^{-x}\sin x\,dx$$

$$\int e^{-x}\sin x\,dx = \frac{-e^{-x}\cos x - e^{-x}\sin x}{2}$$

$$\beta = -2\left(\frac{-e^{-x}\cos x - e^{-x}\sin x}{2}\right)$$

$$\boxed{\beta = e^{-x}\left[\cos x + \cancel{e^{-x}}\sin x\right]}$$

$$\alpha' + \beta' e^{x} = 0 \Rightarrow \alpha' + (-2\sin x\, e^{-x})\,e^{x} = 0$$

$$\alpha' = 2\sin x. \Rightarrow \frac{d\alpha}{dx} = 2\sin x.$$

$$\int d\alpha = 2\int \sin x\,dx \Rightarrow \boxed{\alpha = -2\cos x}$$

donc $y_p = \alpha y_1 + \beta y_2$

$$= -2\cos x + e^{-x}(\cos x + \sin x)\,e^{x}.$$

$$y_p = -2\cos x + \cos x + \sin x.$$

$$\boxed{y_p = \sin x - \cos x}$$

<u>la solution</u> gén^l $y = y_p + y_H$

$$\boxed{y = \sin x - \cos x + \beta e^{x} + \alpha}$$