$$\boxed{y_p = \frac{3}{4}\cos x - \frac{3}{8}\cos 5x}$$

donc la solution géné:

$$y = y_H + y_p$$

$$\boxed{y = \alpha\cos x + \beta\sin x + \frac{3}{4}\cos x - \frac{3}{8}\cos 5x}$$

(2) $y'' - y' = -2\sin x$.

$y'' - y' = 0 \qquad r^2 + r = 0 \Rightarrow \begin{cases} r_1 = 0 \\ r_2 = 1 \end{cases}$

$\Delta = 1 > 0$

$$y_H = \alpha e^{0x} + \beta e^{x} = \alpha + \beta e^{x}.$$

la solution particulier $y_p = \alpha(x)y_1 + \beta(x)y_2$

$y_1 = 1 \quad , y_1' = 0 \qquad y_2 = e^x \quad y_2' = e^x$.

$$\begin{cases} \alpha' y_1 + \beta' y_2 = 0 \\ \alpha' y_1' + \beta' y_2' = \frac{g(x)}{a} \end{cases} \Rightarrow \begin{cases} \alpha' + \beta' e^x = 0. \\ \beta' e^x = -2\sin x. \end{cases}$$

$\beta' = -2e^{-x}\sin x \Rightarrow \frac{d\beta}{dx} = -2e^{-x}\sin x.$

$d\beta = -2\int e^{-x}\sin x\, dx$

$\begin{matrix} u = e^{-x} & du = -e^{-x}. \\ dv = \sin x & v = -\cos x \end{matrix} \Big\} I_1 = \int e^{-x}\sin x\, dx = -e^{-x}\cos x - \int e^{-x}\cos x\, dx$

$\begin{matrix} u = e^{-x} & u' = -e^{-x}. \\ v' = \cos x & v = \sin x \end{matrix} \Big\} \int e^{-x}\cos x\, dx = e^{-x}\sin x + \int e^{-x}\sin x\, dx$