2) $\mathcal{L}^{-1}\left[\frac{2}{(s+3)^2}\right] = 2t\,e^{-3t}$

on utilise le tableau

3) $\mathcal{L}^{-1}\left[\frac{s-1}{s^2+2s+1}\right] = ?$

$$\frac{s-1}{s^2+2s+1} = \frac{s-1}{(s+1)^2} = \frac{s+1}{(s+1)^2} - \frac{2}{(s+1)^2} = \frac{1}{s+1} - \frac{2}{(s+1)^2}$$

ce qui donne

$$\mathcal{L}^{-1}\left[\frac{s-1}{s^2+2s+1}\right] = e^{-t} - 2t\,e^{-t}$$

4) $\mathcal{L}^{-1}\left(\frac{4}{s+1} + \frac{1}{s^2}\right) = 4e^{-t} + t$

5) $\mathcal{L}^{-1}\left[\frac{s}{(s^2+1)(s-1)}\right] = ?$

$$\frac{s}{(s^2+1)(s-1)} = \frac{as+b}{s^2+1} + \frac{c}{s-1}$$

$$= -\frac{1}{2}\frac{s}{s^2+1} + \frac{1}{2}\frac{1}{s^2+1} + \frac{1}{2}\frac{1}{s-1}$$

$$\Rightarrow \mathcal{L}^{-1}\left[\frac{s}{(s^2+1)(s-1)}\right] = -\frac{1}{2}\cos t + \frac{1}{2}\sin t + \frac{1}{2}e^{t}$$