

LF9**Oppg ave 1:** a) $x(t) = \frac{1}{2}(3e^t - e^{-t}), y(t) = \frac{1}{2}(e^t - e^{-t}),$ b) $x(t) = 2e^{4t} - e^{6t}, y(t) = -e^{6t} - 2e^{4t},$ c) $x(t) = (1 - t)e^{2t}, y(t) = -te^{2t}$ **Oppg ave 2:** a), $x(t) = t \sin(t) + \cos(t), y(t) = t \cos(t),$ b) $x(t) = 1 + 2 \sin(t) + (\cos(t - 1) - \sin(t - 1) - 1) u_1(t),$ $y(t) = 2 \cos(t) - 2 + (1 - \cos(t - 1) - \sin(t - 1)) u_1(t),$ c) $x(t) = \cos(t) + (\cosh(t - 2\pi) - \cos(t)) u_{2\pi}(t),$ $y(t) = \sin(t) - (\sinh(t - 2\pi) + \sin(t)) u_{2\pi}(t).$ Alternativt kan vi skrive

$$x(t) = \begin{cases} \cos(t), & t \leq 2\pi \\ \cosh(t - 2\pi), & t \geq 2\pi \end{cases} \quad y(t) = \begin{cases} \sin(t), & t \leq 2\pi \\ -\sinh(t - 2\pi), & t \geq 2\pi \end{cases}$$

Oppg ave 3: a) $x(t) = \frac{1}{8}(9e^t + 9e^{-t} - 10 \cos(\sqrt{3}t)),$ $y(t) = \frac{1}{8}(9e^t + 9e^{-t} - 2 \cos(\sqrt{3}t)),$ b) $x(t) = e^t + e^{2t}, y(t) = e^{2t}$ **Oppg ave 4:** $x(t) = t^2 + 2, y(t) = 0, z(t) = 2t^2$