

Version A, röd. Svar, problem 1:

$$y(t) = \frac{1}{5}e^{-2(t-\pi/2)}\mathcal{U}(t-\pi/2) - \frac{1}{5}\cos(t-\pi/2)\mathcal{U}(t-\pi/2) + \frac{2}{5}\sin(t-\pi/2)\mathcal{U}(t-\pi/2).$$

Svar, problem 2:

$$x_1(t) = -\frac{1}{5\sqrt{3}}\sin[2\sqrt{3}(t-2)]\mathcal{U}(t-2) + \frac{\sqrt{2}}{5}\sin[\sqrt{2}(t-2)]\mathcal{U}(t-2),$$

$$x_2(t) = \frac{2\sqrt{2}}{5}\sin[\sqrt{2}(t-2)]\mathcal{U}(t-2) + \frac{1}{10\sqrt{3}}\sin[2\sqrt{3}(t-2)]\mathcal{U}(t-2).$$

Version B, grön. Svar, problem 1:

$$y(t) = \frac{1}{10}e^{-3(t-\pi/2)}\mathcal{U}(t-\pi/2) - \frac{1}{10}\cos(t-\pi/2)\mathcal{U}(t-\pi/2) + \frac{3}{10}\sin(t-\pi/2)\mathcal{U}(t-\pi/2).$$

Svar, problem 2:

$$x_1(t) = -\frac{1}{5\sqrt{6}}\sin[2\sqrt{6}(t-3)]\mathcal{U}(t-3) + \frac{1}{5}\sin[2(t-3)]\mathcal{U}(t-3),$$

$$x_2(t) = \frac{2}{5}\sin[2(t-3)]\mathcal{U}(t-3) + \frac{1}{10\sqrt{6}}\sin[2\sqrt{6}(t-3)]\mathcal{U}(t-3).$$