Matematisk modellering og numeriske metoder
Opgaver til Lektion 5

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Exercise 1

$$\sin(3t) + \frac{4}{3}\cos(3t) + 25$$

Exercise 2

$c_1 \cos(\sqrt{2}t) + c_2 \sin(\sqrt{2}t) + \frac{t\sin(\sqrt{2}t)}{2\sqrt{2}} - \frac{t\cos(\sqrt{2}t)}{2\sqrt{2}}$

Exercise 3

$$\frac{4}{5}e^{-\frac{t}{2}}\sin(\tfrac{t}{2}) - \frac{2}{5}e^{-\frac{t}{2}}\cos(\frac{t}{2})$$

$$\frac{4}{5}e^{-t}\sin(t) + \frac{2}{5}e^{-t}\cos(t) + \frac{4}{5}e^{-\frac{t}{2}}\sin(\tfrac{t}{2}) - \frac{2}{5}e^{-\frac{t}{2}}\cos(\frac{t}{2})$$

Exercise 4

Use the formula $\cos(\vartheta) - \cos(\varphi) = -2\sin(\frac{\vartheta+\varphi}{2})\sin(\frac{\vartheta-\varphi}{2})$.