LÖSUNG ZU 269:
a)

$y'(t) = 0{,}4 \cdot (12 - y(t))$ $\quad y(0) = 2$

$\frac{dy}{dt} = 0{,}4 \cdot (12 - y(t))$

$\frac{1}{12-y}\,dy = 0{,}4\,dt$

$\int \frac{1}{12-y}\,dy = \int 0{,}4\,dt$

$-\ln(12 - y) = 0{,}4t + C$

$12 - y = e^{-0{,}4t - C} = e^{-0{,}4t} \cdot C_1$

$y(t) = 12 - e^{-0{,}4t} \cdot C_1$

$y(0) = 12 - e^{-0{,}4 \cdot 0} \cdot C_1 = 12 - C_1 = 2 \quad \rightarrow \quad C_1 = 10$

**$y(t) = 12 - 10 \cdot e^{-0{,}4t}$**