

Zomertarwe

$$\begin{aligned} 6. \quad e^{0,1 \cdot (18-40)} &= e^{-0,2 \cdot (t-100)} \\ \ln(e^{0,1 \cdot (18-40)}) &= \ln(e^{-0,2 \cdot (t-100)}) \quad \rightarrow \quad 0,1 \cdot (18-40) \cdot \ln e = -0,2 \cdot (t-100) \cdot \ln e \\ t &= \frac{0,1 \cdot (18-40)}{-0,2} + 100 = 111 \end{aligned}$$

$$\begin{aligned} 7. \quad z'(t) &= 100 \cdot e^{0,1 \cdot (t-40)} \quad \rightarrow \quad z(t) = 1000 \cdot e^{0,1 \cdot (t-40)} + b \\ z(0) &= 1000 \cdot e^{-4} + b = 30 \quad \rightarrow \quad b = 11,68 \quad \text{en} \quad a = 1000 \end{aligned}$$

$$\begin{aligned} 8. \quad z(100) &= 30 + \int_0^{100} z'(s) ds = 30 + \int_0^{40} z_1'(s) ds + \int_{40}^{100} z_2'(s) ds = 30 + [1000 \cdot e^{0,1(s-40)}]_0^{40} + [100s]_{40}^{100} = \\ &= 30 + 1000 - 18,32 + 10000 - 4000 = 7011,68 \end{aligned}$$

$$\begin{aligned} 9. \quad z(120) &= z(100) + \int_{100}^{120} z_3'(s) ds = 7011,68 + [-500 \cdot e^{-0,2(t-100)}]_{100}^{120} = \\ &= 7011,68 - 9,158 + 500 = 7502,52 \end{aligned}$$