

Twee exponentiële functies

$$\begin{aligned} 11. \quad A &= \int_a^0 (e^x - e^{2x}) dx = \left[e^x - \frac{1}{2} e^{2x} \right]_a^0 = \frac{1}{2} - e^a + \frac{1}{2} e^{2a} = \frac{1}{2} (1 - 2 \cdot e^a + (e^a)^2) \\ &= \frac{1}{2} (1 - e^a)^2 \end{aligned}$$

$$12. \quad L = e^x - e^{2x}$$

$$\frac{dL}{dx} = e^x - 2e^{2x} = 0$$

$$\begin{aligned} e^x &= 2e^{2x} & \rightarrow & e^x = 2 \cdot (e^x)^2 \\ e^x &= 0 & \text{of} & 2 \cdot e^x = 1 \\ & & & e^x = \frac{1}{2} \end{aligned}$$

$$L = \frac{1}{2} - \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$