

Sauna

$$1. \quad 200 - 180 \cdot e^{-0,29 \cdot t} = 100$$

$$t = \frac{\ln(100/180)}{-0,29} = 2,027$$

Dus $2,027 \cdot 60 \text{ min} = 122 \text{ min}$ na 15.00 uur, dat is om 17.02 uur.

Of met de GR:

$$y_1 = 180 \cdot e^{-0,29 \cdot x} \quad y_2 = 100$$

$$\text{intersect} \rightarrow x = 2,027$$

$$2. \quad \frac{dS}{dt} = -180 \cdot -0,29 \cdot e^{-0,29 \cdot t}$$

$$S'(1) = -180 \cdot -0,29 \cdot e^{-0,29} = 39,06$$

$$\text{Dus een toename van } \frac{39,06}{60} = 0,7 \text{ } ^\circ\text{C/min}$$

$$3. \quad S = 200 - 180 \cdot e^{-0,29 \cdot t} \quad 180 \cdot e^{-0,29 \cdot t} = 200 - S$$

$$-0,29 \cdot t = \ln\left(\frac{200-S}{180}\right) \rightarrow t = \frac{\ln\left(\frac{200-S}{180}\right)}{-0,29}$$