

S 188 Nr 11

a) $B(0) = 10$, $B(1) = 20$, $B(10) = 70$

$$B(t) = S - c e^{-k t}$$

I.) $B(0) = S - c \cdot e^{-k \cdot 0} = 10 \Rightarrow \underline{S = 10 + c}$

II.) $B(1) = S - c \cdot e^{-k \cdot 1} = 20 \Rightarrow 10 + c - c \cdot e^{-k} = 20$

$$c(1 - e^{-k}) = 10$$

$$\underline{c = \frac{10}{1 - e^{-k}}}$$

III.) $B(10) = S - c \cdot e^{-k \cdot 10} = 70 \Rightarrow 10 + \frac{10}{1 - e^{-k}} - \frac{10}{1 - e^{-k}} \cdot e^{-k \cdot 10} = 70$

$$\underline{\underline{\frac{10}{1 - e^{-k}} (1 - e^{-k \cdot 10}) = 60}}$$

mit GTR $\Rightarrow \underline{\underline{k = 0,12843257}}$

$$\underline{c} = \frac{10}{1 - e^{-0,12843257}} \approx \underline{\underline{82,96886719}}$$

$$\underline{S} = \underline{\underline{92,96886719}}$$