

Exponentielles Wachstum

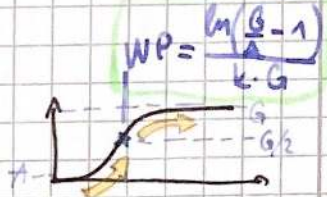


$$\begin{aligned} f(x) &= a \cdot b^x \\ &= a \cdot e^{\ln(b) \cdot x} \\ &= a \cdot e^{k \cdot x} \end{aligned}$$

a = Anfangsbestand
 b = Wachstumsfaktor
 k = Wachstumskonstante
($= \ln(b)$)

$$\begin{aligned} f'(x) &= k \cdot a \cdot e^{k \cdot x} \\ &= k \cdot f(x) \end{aligned}$$

Logistisches Wachstum

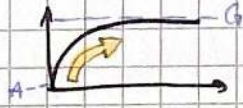


$$f(x) = \frac{A \cdot G}{A + (G - A) \cdot e^{-k \cdot G \cdot x}}$$

$$f'(x) = k \cdot f(x) \cdot (G - f(x))$$

A = Anfangsbestand
 G = Grenzwert
 k = Wachstumskonstante

Begrenzttes Wachstum



$$f(x) = (A - G) \cdot e^{-kx} + G$$

$$f'(x) = k \cdot (G - f(x))$$

A = Anfangsbestand
 G = Grenzwert
 k = Wachstumskonstante