

Arbeitspunkt 1

$$m_{11} = a \cdot m_{21} + b \cdot m_{31}$$

Arbeitspunkt 2

$$m_{12} = a \cdot m_{22} + b \cdot m_{32}$$

$$b = \frac{m_{12} \cdot m_{21} - m_{11} \cdot m_{22}}{m_{21} \cdot m_{32} - m_{22} \cdot m_{31}}$$

$$a = \frac{m_{11} \cdot m_{32} - m_{12} \cdot m_{31}}{m_{21} \cdot m_{32} - m_{22} \cdot m_{31}}$$

Arbeitspunkt 1

$$\begin{aligned}\mu_{11} &:= 14 & \sigma_{11} &:= 0.2 \\ \mu_{21} &:= 4 & \sigma_{21} &:= 0.36 \\ \mu_{31} &:= 2 & \sigma_{31} &:= 0.15 \\ N &:= 100\end{aligned}$$

erzeuge Messwerte (normalverteilt)

$$\begin{aligned}m11 &:= \text{rnorm}(N, \mu_{11}, \sigma_{11}) \\ m21 &:= \text{rnorm}(N, \mu_{21}, \sigma_{21}) \\ m31 &:= \text{rnorm}(N, \mu_{31}, \sigma_{31})\end{aligned}$$

bilde Mittelwert

$$\begin{aligned}m_{11} &:= \text{mean}(m11) = 14 \\ m_{21} &:= \text{mean}(m21) = 3.955 \\ m_{31} &:= \text{mean}(m31) = 2.007\end{aligned}$$

Arbeitspunkt 2

$$\begin{aligned}\mu_{12} &:= 28 & \sigma_{12} &:= 0.22 \\ \mu_{22} &:= 5 & \sigma_{22} &:= 0.16 \\ \mu_{32} &:= 6 & \sigma_{32} &:= 0.25 \\ N &:= 100\end{aligned}$$

erzeuge Messwerte (normalverteilt)

$$\begin{aligned}m12 &:= \text{rnorm}(N, \mu_{12}, \sigma_{12}) \\ m22 &:= \text{rnorm}(N, \mu_{22}, \sigma_{22}) \\ m32 &:= \text{rnorm}(N, \mu_{32}, \sigma_{32})\end{aligned}$$

bilde Mittelwert

$$\begin{aligned}m_{12} &:= \text{mean}(m12) = 28.008 \\ m_{22} &:= \text{mean}(m22) = 4.986 \\ m_{32} &:= \text{mean}(m32) = 6.002\end{aligned}$$

Ergebnisse

$$a := \frac{m_{11} \cdot m_{32} - m_{12} \cdot m_{31}}{m_{21} \cdot m_{32} - m_{22} \cdot m_{31}} = 2.026$$

$$b := \frac{-(m_{11} \cdot m_{22}) + m_{12} \cdot m_{21}}{m_{21} \cdot m_{32} - m_{22} \cdot m_{31}} = 2.984$$