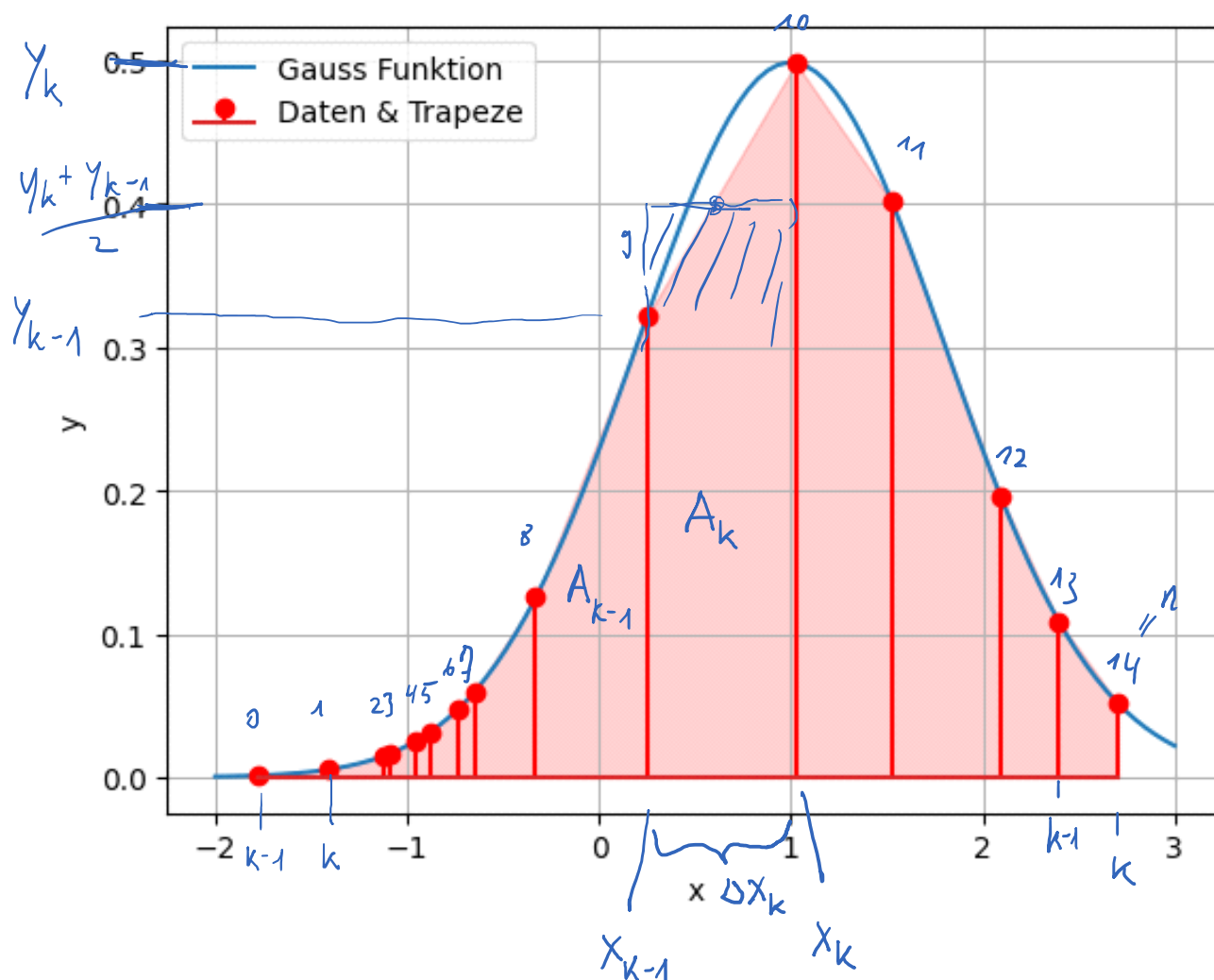


08 Trapezregel mit ungleichmässig verteilten Daten

Freitag, 14. April 2023

12:27



$$A_k = \Delta x_k \cdot \left(\frac{y_k + y_{k-1}}{2} \right)$$

$$A = \sum_{k=1}^n A_k = \frac{1}{2} \sum_{k=1}^n \Delta x_k (y_k + y_{k-1})$$

$$\Delta x_k = x_k - x_{k-1}$$

Vektorisierung

$$X[1:] = \begin{array}{|c|c|c|c|c|c|c|c|} \hline \text{shaded} & & & & & & & \\ \hline \end{array}$$

$$X[: -1] = \begin{array}{|c|c|c|c|c|c|c|c|} \hline & & & & & & & \text{shaded} \\ \hline \end{array}$$

$$X[1:] - X[: -1] = \begin{array}{c} \begin{array}{|c|c|c|c|c|c|c|c|} \hline 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline \text{shaded} & & & & & & & \\ \hline \end{array} \\ - \begin{array}{|c|c|c|c|c|c|c|c|} \hline & & & & & & & \text{shaded} \\ \hline \end{array} \\ \begin{array}{|c|c|c|c|c|c|c|c|} \hline 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline \end{array} \end{array}$$

$$= \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix}$$