

Scalar

Vector

Matrix

Tensor

1

$$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$$
$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$
$$\begin{bmatrix} \begin{bmatrix} 1 & 2 \end{bmatrix} & \begin{bmatrix} 3 & 2 \end{bmatrix} \\ \begin{bmatrix} 1 & 7 \end{bmatrix} & \begin{bmatrix} 5 & 4 \end{bmatrix} \end{bmatrix}$$

Key attributes

- The number of axes it has, its **rank**. For instance, a 3D tensor has 3 axes, and a matrix has 2 axes.
- Its **shape**. This is a tuple of integers that describes how many dimensions the tensor has along each axis.
- Its **data type** (usually called dtype throughout Python libraries). This is the type of the data contained inside the tensor; for instance a tensor's type could be float32, uint8, float64...