



Addition von Vektoren

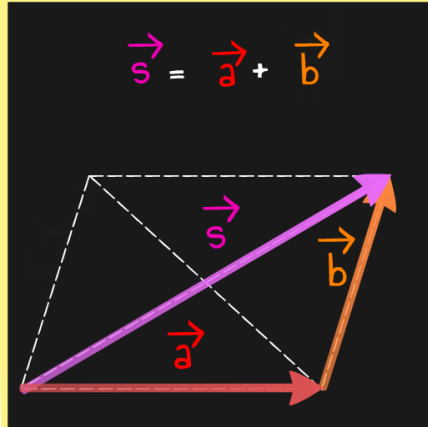
Gegeben:

$$\vec{a} = \begin{pmatrix} 7 \\ 2 \\ 3 \end{pmatrix}$$

$$\vec{b} = \begin{pmatrix} 5 \\ 8 \\ 1 \end{pmatrix}$$

Gesucht:

$$\vec{s} = \vec{a} + \vec{b}$$



$$\vec{s} = \begin{pmatrix} 7 \\ 2 \\ 3 \end{pmatrix} + \begin{pmatrix} 5 \\ 8 \\ 1 \end{pmatrix} = \begin{pmatrix} 7+5 \\ 2+8 \\ 3+1 \end{pmatrix} = \begin{pmatrix} 12 \\ 10 \\ 4 \end{pmatrix}$$

$$\vec{s} = \begin{pmatrix} 12 \\ 10 \\ 4 \end{pmatrix}$$



Subtraktion von Vektoren = Addition des Gegenvektors

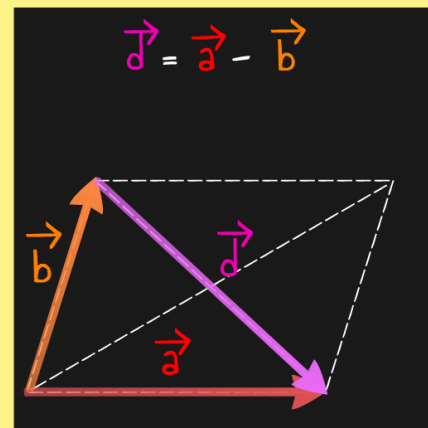
Gegeben:

$$\vec{a} = \begin{pmatrix} 3 \\ 6 \\ 7 \end{pmatrix}$$

$$\vec{b} = \begin{pmatrix} 9 \\ 5 \\ 4 \end{pmatrix}$$

Gesucht:

$$\vec{d} = \vec{a} - \vec{b}$$



$$\vec{d} = \vec{a} - \vec{b} = \vec{a} + (-\vec{b})$$

$$\vec{d} = \begin{pmatrix} 3 \\ 6 \\ 7 \end{pmatrix} - \begin{pmatrix} 9 \\ 5 \\ 4 \end{pmatrix} = \begin{pmatrix} 3 \\ 6 \\ 7 \end{pmatrix} + \begin{pmatrix} -9 \\ -5 \\ -4 \end{pmatrix}$$

$$\vec{d} = \begin{pmatrix} 3-9 \\ 6-5 \\ 7-4 \end{pmatrix} = \begin{pmatrix} -6 \\ 1 \\ 3 \end{pmatrix}$$

$$\vec{d} = \begin{pmatrix} -6 \\ 1 \\ 3 \end{pmatrix}$$