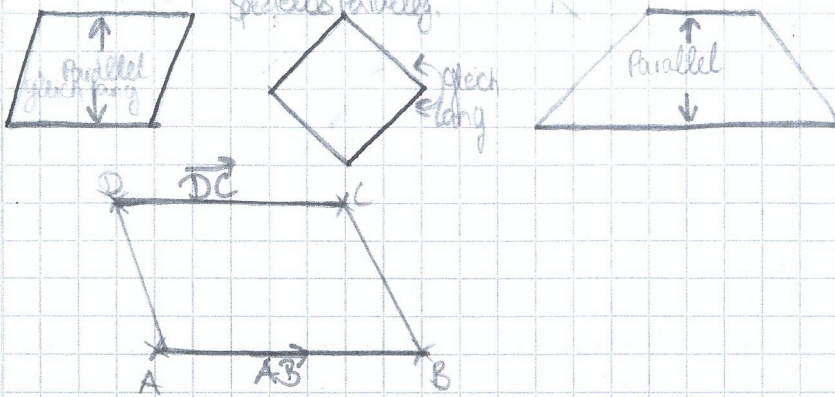


b) A(7|0|6) B(3|-6|4) C(7|5|2) D(5|2|-3)

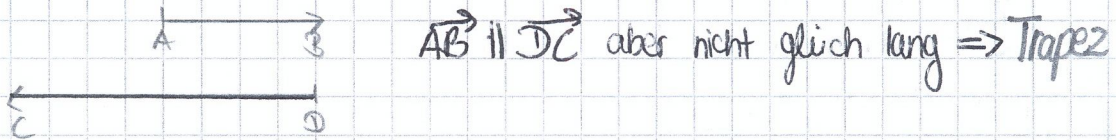
Parallelogramm, Raute, Trapez?



$$\vec{AB} = \vec{b} - \vec{a} = \begin{pmatrix} 3 \\ -6 \\ 4 \end{pmatrix} - \begin{pmatrix} 7 \\ 0 \\ 6 \end{pmatrix} = \begin{pmatrix} -4 \\ -6 \\ -2 \end{pmatrix}$$

$$\vec{DC} = \vec{c} - \vec{d} = \begin{pmatrix} 7 \\ 5 \\ -2 \end{pmatrix} - \begin{pmatrix} 5 \\ 2 \\ -3 \end{pmatrix} = \begin{pmatrix} 2 \\ 3 \\ 1 \end{pmatrix}$$

$$\vec{AB} = -2 \cdot \vec{DC}$$



c) A(2|-3|-5) B(0|-1|-2) C(4|-2|3) D(-3|4|3)

$$\vec{AB} = \vec{b} - \vec{a} = \begin{pmatrix} 0 \\ -1 \\ -2 \end{pmatrix} - \begin{pmatrix} 2 \\ -3 \\ -5 \end{pmatrix} = \begin{pmatrix} -2 \\ 2 \\ 3 \end{pmatrix}$$

$$\vec{DC} = \vec{c} - \vec{d} = \begin{pmatrix} 4 \\ -2 \\ 3 \end{pmatrix} - \begin{pmatrix} -3 \\ 4 \\ 3 \end{pmatrix} = \begin{pmatrix} 7 \\ -6 \\ 0 \end{pmatrix}$$

$$\vec{BC} = \vec{c} - \vec{b} = \begin{pmatrix} 4 \\ -2 \\ -3 \end{pmatrix} - \begin{pmatrix} 0 \\ -1 \\ -2 \end{pmatrix} = \begin{pmatrix} 4 \\ -1 \\ -1 \end{pmatrix}$$

$$\vec{AD} = \vec{d} - \vec{a} = \begin{pmatrix} -3 \\ 4 \\ 3 \end{pmatrix} - \begin{pmatrix} 2 \\ -3 \\ -5 \end{pmatrix} = \begin{pmatrix} -5 \\ 7 \\ -2 \end{pmatrix}$$

d) A(2|5|-2) B(5|2|1) C(1|-2|-1) D(-2|1|-4)

$$\vec{AB} = \vec{b} - \vec{a} = \begin{pmatrix} 5 \\ 2 \\ 1 \end{pmatrix} - \begin{pmatrix} 2 \\ 5 \\ -2 \end{pmatrix} = \begin{pmatrix} 3 \\ -3 \\ 3 \end{pmatrix}$$

$$\vec{DC} = \vec{c} - \vec{d} = \begin{pmatrix} 1 \\ -2 \\ -1 \end{pmatrix} - \begin{pmatrix} -2 \\ 1 \\ -4 \end{pmatrix} = \begin{pmatrix} 3 \\ -3 \\ 3 \end{pmatrix}$$

$$\vec{BC} = \vec{c} - \vec{b} = \begin{pmatrix} 1 \\ -2 \\ -1 \end{pmatrix} - \begin{pmatrix} 5 \\ 2 \\ 1 \end{pmatrix} = \begin{pmatrix} -4 \\ -4 \\ -2 \end{pmatrix}$$

$$\vec{AD} = \vec{d} - \vec{a} = \begin{pmatrix} -2 \\ 1 \\ -4 \end{pmatrix} - \begin{pmatrix} 2 \\ 5 \\ -2 \end{pmatrix} = \begin{pmatrix} -4 \\ -4 \\ -2 \end{pmatrix}$$

Parallelogramm

$$d) \vec{AM_a} = \begin{pmatrix} -3,5 \\ 6 \\ -6,5 \end{pmatrix}$$

$$\vec{AR} = \begin{pmatrix} -\frac{7}{6} \\ 2 \\ -\frac{13}{6} \end{pmatrix} \left\{ \begin{array}{l} \text{zeigt in die gleiche Richtung wie } \vec{AM_a} \text{ und ist} \\ \frac{1}{3} \text{ so lang} \end{array} \right.$$

$$\vec{AS} = \begin{pmatrix} -\frac{7}{3} \\ 4 \\ -\frac{13}{3} \end{pmatrix} = 2 \cdot \vec{AR}$$

$$\vec{DS} = \vec{DA} + \vec{AS} =$$

$$\vec{DS} = \begin{pmatrix} 3 \\ -2 \\ 5 \end{pmatrix} + \begin{pmatrix} -\frac{7}{3} \\ 4 \\ -\frac{13}{3} \end{pmatrix} = \begin{pmatrix} \frac{2}{3} \\ 2 \\ \frac{2}{3} \end{pmatrix}$$

$$S \left(\frac{2}{3} \mid 2 \mid \frac{2}{3} \right)$$

