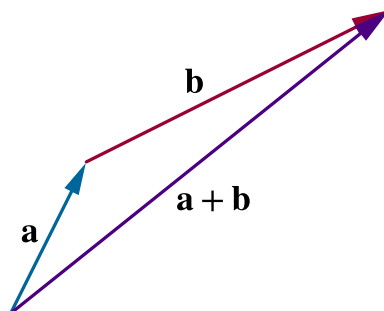


# Vector addition

To *add vectors* given in component form, we add each component separately. For instance,

$$\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 4 \\ 3 \end{pmatrix} = \begin{pmatrix} 1+4 \\ 2+3 \end{pmatrix} = \begin{pmatrix} 5 \\ 5 \end{pmatrix}.$$

Graphically, this is equivalent to taking the lines representing each vector and placing them end to end.



Vector addition is commutative, meaning that

$$\mathbf{a} + \mathbf{b} = \mathbf{b} + \mathbf{a}.$$