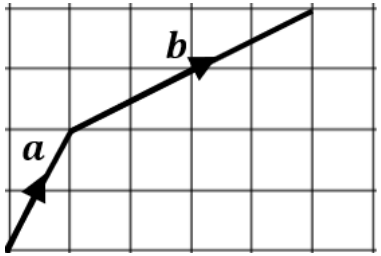
Adding and Subtracting Vectors

(a)

The vectors $\boldsymbol{a}$ and $\boldsymbol{b}$ are shown.

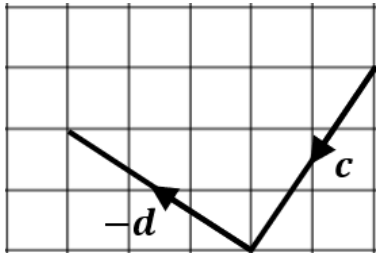
Draw the vector $\boldsymbol{a}+\boldsymbol{b}$.



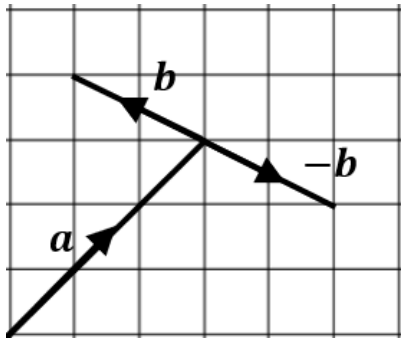
(b)

The vectors $\boldsymbol{c}$ and $-\boldsymbol{d}$ are shown.

Draw the vector $\boldsymbol{c}+(-\boldsymbol{d})$.



(c)



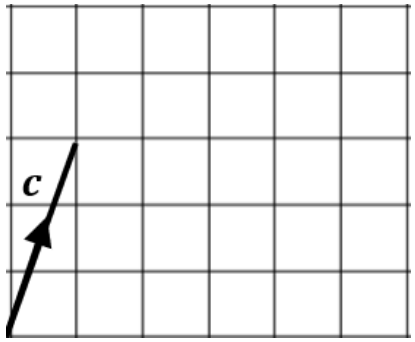
The vectors $\boldsymbol{a}, \boldsymbol{b}$ and $-\boldsymbol{b}$ are shown.

Draw the vectors

(i) $\boldsymbol{a}+\boldsymbol{b}$

(ii) $\boldsymbol{a}+(-\boldsymbol{b})$.

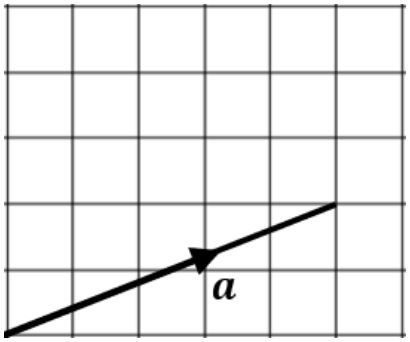
(d)



$\boldsymbol{c}=\begin{pmatrix}1\\3\end{pmatrix}$ $\boldsymbol{d}=\begin{pmatrix}4\\-1\end{pmatrix}$

Draw the vector $\boldsymbol{c}+\boldsymbol{d}$ and find its column vector.

(e)



$\boldsymbol{a}=\begin{pmatrix}5\\2\end{pmatrix}$ $\boldsymbol{b}=\begin{pmatrix}2\\1\end{pmatrix}$

Draw the vector $\boldsymbol{a}-\boldsymbol{b}$ and find its column vector.

(f)

$\boldsymbol{e}=\begin{pmatrix}7\\1\end{pmatrix}$ $\boldsymbol{f}=\begin{pmatrix}-3\\4\end{pmatrix}$

Find $\boldsymbol{e}+\boldsymbol{f}$

(g)

$\boldsymbol{c}=\begin{pmatrix}-2\\5\end{pmatrix}$ $\boldsymbol{d}=\begin{pmatrix}1\\4\end{pmatrix}$

Find $\boldsymbol{c}-\boldsymbol{d}$

(h)

$\boldsymbol{a}=\begin{pmatrix}0\\4\end{pmatrix}$ $\boldsymbol{b}=\begin{pmatrix}6\\-3\end{pmatrix}$

Find $\boldsymbol{b}-\boldsymbol{a}$

(i)

$\boldsymbol{e}=\begin{pmatrix}-6\\1\end{pmatrix}$ $\boldsymbol{f}=\begin{pmatrix}2\\-1\end{pmatrix}$

Find $-\boldsymbol{e}+\boldsymbol{f}$

(j)

$\boldsymbol{a}=\begin{pmatrix}8\\0\end{pmatrix}$ $\boldsymbol{b}=\begin{pmatrix}-2\\-5\end{pmatrix}$ $\boldsymbol{c}=\begin{pmatrix}-3\\7\end{pmatrix}$

Find (i) $\boldsymbol{a}+\boldsymbol{b}+\boldsymbol{c}$ (ii) $\boldsymbol{a}+\boldsymbol{b}-\boldsymbol{c}$ (iii) $\boldsymbol{a}-\boldsymbol{b}-\boldsymbol{c}$