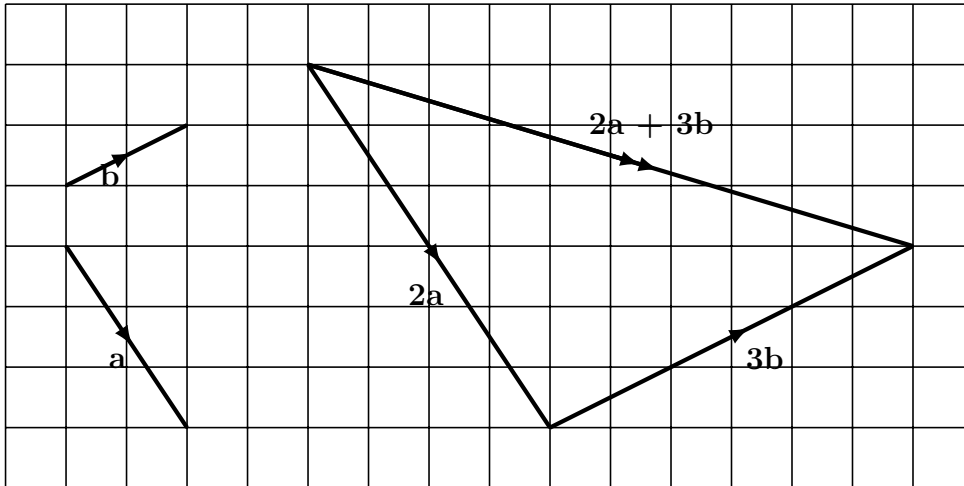


1. Here are some vectors.



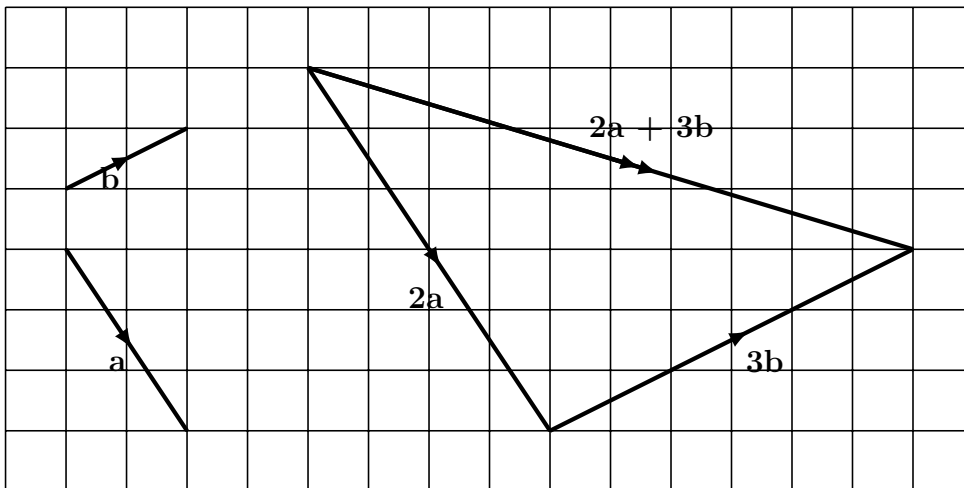
(a) Complete these column vectors from the diagram.

$$(i) \mathbf{a} = \begin{pmatrix} \dots \\ \dots \end{pmatrix} \quad (ii) \mathbf{b} = \begin{pmatrix} \dots \\ \dots \end{pmatrix} \quad (iii) 2\mathbf{a} + 3\mathbf{b} = \begin{pmatrix} \dots \\ \dots \end{pmatrix}$$

To work out  $2\mathbf{a} + 3\mathbf{b}$  write down (iv)  $2\mathbf{a} = \begin{pmatrix} \dots \\ \dots \end{pmatrix}$  and (v)  $3\mathbf{b} = \begin{pmatrix} \dots \\ \dots \end{pmatrix}$

(b) Check that working out  $2\mathbf{a} + 3\mathbf{b}$  gives the same vector as (iii)

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$$2. \quad \mathbf{a} = \begin{pmatrix} 3 \\ -1 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$$

Work out  $2\mathbf{a} + \mathbf{b}$  as a column vector.

$$\begin{pmatrix} \dots \\ \dots \end{pmatrix}$$

$$3. \quad \mathbf{a} = \begin{pmatrix} -2 \\ -1 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$

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translate and vector (11) answers

$$1 \text{ (a)(i)} \begin{pmatrix} 2 \\ -3 \end{pmatrix} \text{ (ii)} \begin{pmatrix} 2 \\ 1 \end{pmatrix} \text{ (iii)} \begin{pmatrix} 10 \\ -3 \end{pmatrix} \text{ (iv)} \begin{pmatrix} 4 \\ -6 \end{pmatrix} \text{ (v)} \begin{pmatrix} 6 \\ 3 \end{pmatrix} 2. \begin{pmatrix} 4 \\ 2 \end{pmatrix} 3. \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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