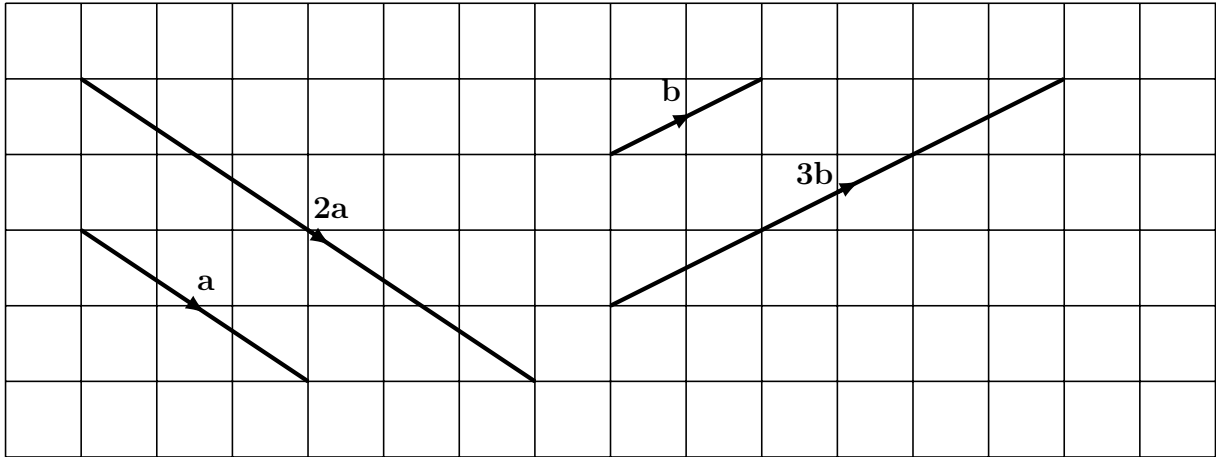


1. Here are some vectors.



$$\mathbf{a} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$$

$$\mathbf{b} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

(a) Complete these column vectors from the diagram.

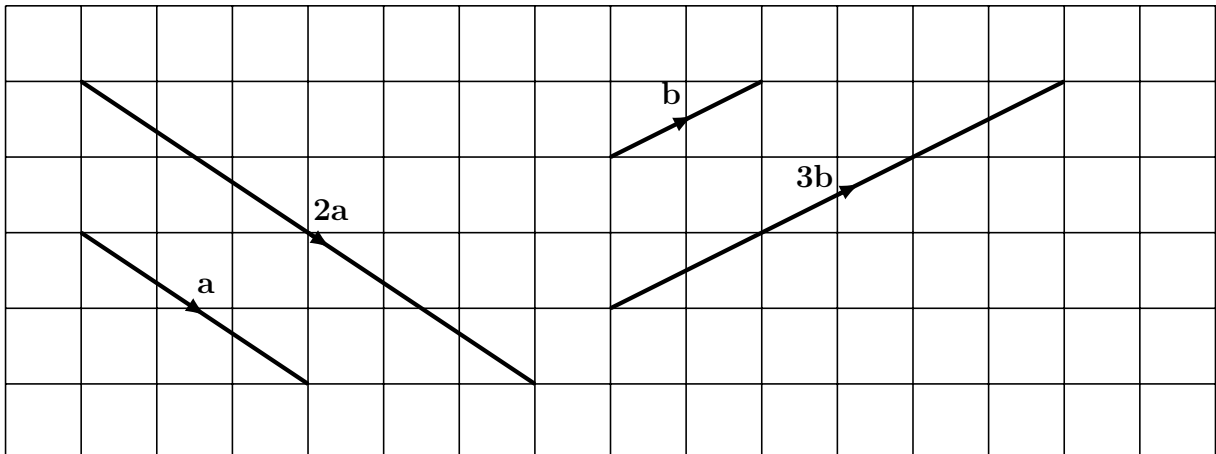
(i) $2\mathbf{a} = \begin{pmatrix} \dots \\ \dots \end{pmatrix}$

(ii) $3\mathbf{b} = \begin{pmatrix} \dots \\ \dots \end{pmatrix}$

(b) Is multiplying the numbers in vector \mathbf{a} by 2 a quicker way to work out $2\mathbf{a}$?

(c) Multiplying the numbers in vector \mathbf{b} by is a quicker way to work out $3\mathbf{b}$

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$$2. \quad \mathbf{a} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} -3 \\ 5 \end{pmatrix}$$

Complete these column vectors

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translate and vector (8) Answers

$$1 \text{ (a)(i)} \begin{pmatrix} 6 \\ -4 \end{pmatrix} \text{ (ii)} \begin{pmatrix} 6 \\ 3 \end{pmatrix} \text{ (b) yes (c) 3} \quad 2 \text{ (i)} \begin{pmatrix} 12 \\ -6 \end{pmatrix} \text{ (ii)} \begin{pmatrix} -12 \\ 20 \end{pmatrix} \quad 3 \text{ (i)} \begin{pmatrix} 10 \\ 4 \end{pmatrix} \text{ (ii)} \begin{pmatrix} -9 \\ 12 \end{pmatrix}$$

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