Add two column vectors (including diagrams) to give a resultant vector

Maths

Miss Davies

Adding column vectors

1. Fill in the blanks with the correct column vector.

a) $\begin{pmatrix} 4 \\ -4 \end{pmatrix} + \begin{pmatrix} 5 \\ 3 \end{pmatrix} = \square$

b) $\begin{pmatrix} 4 \\ 7 \end{pmatrix} + \square = \begin{pmatrix} 3 \\ 10 \end{pmatrix}$

c) $\square + \begin{pmatrix} 5 \\ -11 \end{pmatrix} = \begin{pmatrix} 5 \\ -7 \end{pmatrix}$

2. Given $a = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$, $b = \begin{pmatrix} 2 \\ -5 \end{pmatrix}$ and $c = \begin{pmatrix} -7 \\ 3 \end{pmatrix}$ work out the following.

a) a + b

b) a + c

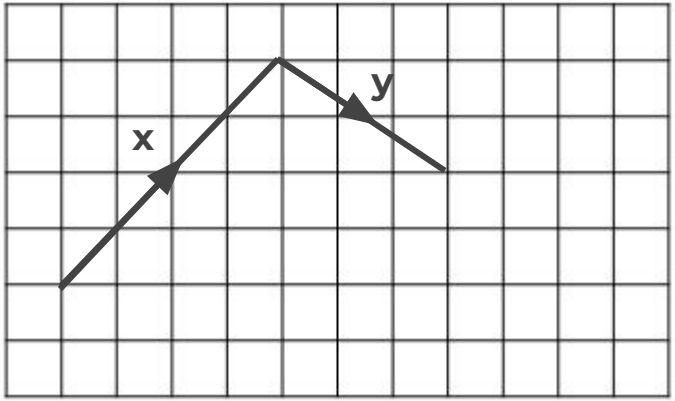
c) b + c

d) a + b + c

e) b + b + b

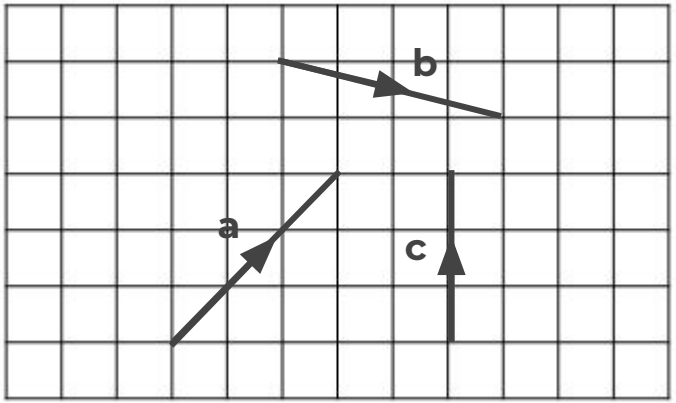
Adding column vectors

3. On the grid are vectors **x** and **y.**



Find the vector x + y

4. Use the diagram to match up the cards.



$\begin{pmatrix}3\\6\end{pmatrix}$ $\begin{pmatrix}7\\2\end{pmatrix}$ b + c a + c

$\begin{pmatrix}4\\2\end{pmatrix}$ a + b

Answers

Adding column vectors

1. Fill in the blanks with the correct column vector.

a) $\begin{pmatrix}4\\-4\end{pmatrix} + \begin{pmatrix}5\\3\end{pmatrix} = \begin{pmatrix}9\\-1\end{pmatrix}$

b) $\begin{pmatrix}4\\7\end{pmatrix} + \begin{pmatrix}-1\\3\end{pmatrix} = \begin{pmatrix}3\\10\end{pmatrix}$

c) $\begin{pmatrix}0\\4\end{pmatrix} + \begin{pmatrix}5\\-11\end{pmatrix} = \begin{pmatrix}5\\-7\end{pmatrix}$

2. Given $a = \begin{pmatrix}2\\1\end{pmatrix}$, $b = \begin{pmatrix}2\\-5\end{pmatrix}$ and $c = \begin{pmatrix}-7\\3\end{pmatrix}$ work out the following.

a) a + b $\begin{pmatrix}4\\-4\end{pmatrix}$

b) a + c $\begin{pmatrix}-5\\4\end{pmatrix}$

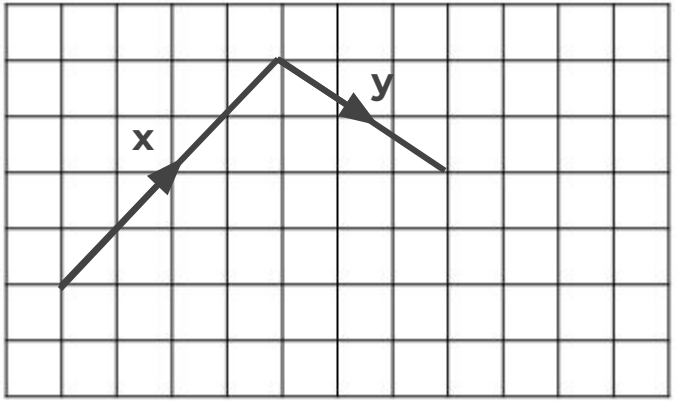
c) b + c $\begin{pmatrix}-5\\-2\end{pmatrix}$

d) a + b + c $\begin{pmatrix}-3\\-1\end{pmatrix}$

e) b + b + b $\begin{pmatrix}6\\-15\end{pmatrix}$

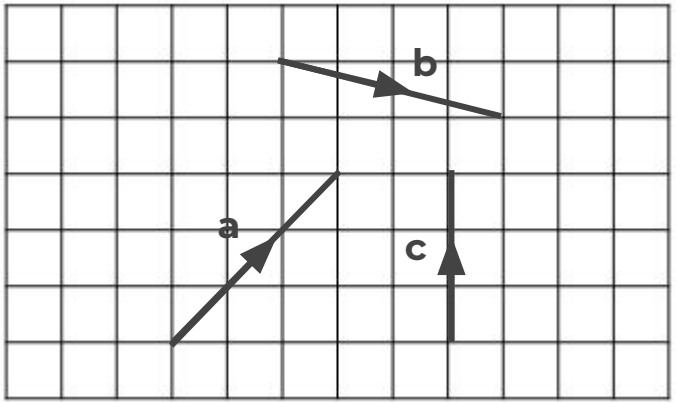
Adding column vectors

3. On the grid are vectors **x** and **y.**



Find the vector x + y $\begin{pmatrix} 7 \\ 2 \end{pmatrix}$

4. Use the diagram to match up the cards.



a + c	$\begin{pmatrix} 3 \\ 6 \end{pmatrix}$
b + c	$\begin{pmatrix} 4 \\ 2 \end{pmatrix}$
a + b	$\begin{pmatrix} 7 \\ 2 \end{pmatrix}$