

Column Vectors Mark Scheme:		
1		<p>[1] Correctly drawn vector from A</p> <p>[1] Correctly drawn vector from B</p> <p>[1] Correctly drawn vector from C</p>
2		<p>[1] Correctly drawn vector from $a + b$</p> <p>[1] Correctly drawn vector from $2a$</p> <p>[1] Correctly drawn vector from $4a - 2b$</p>
3(a)	$\begin{pmatrix} 2 \\ 5 \end{pmatrix} + \begin{pmatrix} 10 \\ -4 \end{pmatrix} = \begin{pmatrix} 2 + 10 \\ 5 - 4 \end{pmatrix} = \begin{pmatrix} 12 \\ 1 \end{pmatrix}$	[1]
3(b)	$\begin{pmatrix} -3 \\ -7 \end{pmatrix} + \begin{pmatrix} 10 \\ -4 \end{pmatrix} = \begin{pmatrix} -3 + 10 \\ -7 - 4 \end{pmatrix} = \begin{pmatrix} 7 \\ -11 \end{pmatrix}$	[1]
3(c)	$-\begin{pmatrix} -3 \\ -7 \end{pmatrix} - \begin{pmatrix} 2 \\ 5 \end{pmatrix} = \begin{pmatrix} 3 \\ 7 \end{pmatrix} - \begin{pmatrix} 2 \\ 5 \end{pmatrix} = \begin{pmatrix} 3 - 2 \\ 7 - 5 \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$	[1]
4(a)	$\begin{pmatrix} 3 \\ 1 \end{pmatrix} + \begin{pmatrix} 5 \\ -2 \end{pmatrix} = \begin{pmatrix} 8 \\ -1 \end{pmatrix}$	[1]
4(b)	$\begin{pmatrix} 4 \\ 14 \end{pmatrix} + \begin{pmatrix} 5 \\ -2 \end{pmatrix} = \begin{pmatrix} 9 \\ 12 \end{pmatrix}$	[1]
4(c)	$\begin{pmatrix} 6 \\ 21 \end{pmatrix} - \begin{pmatrix} 10 \\ -4 \end{pmatrix} = \begin{pmatrix} -4 \\ 25 \end{pmatrix}$	[1]
4(d)	$\begin{pmatrix} 6 \\ 2 \end{pmatrix} - \begin{pmatrix} 2 \\ 7 \end{pmatrix} = \begin{pmatrix} 4 \\ -5 \end{pmatrix}$	[1]

Turn over ►

5(a)	$\begin{pmatrix} 5 \\ -1 \end{pmatrix} - \begin{pmatrix} 8 \\ -4 \end{pmatrix} = \begin{pmatrix} 5-8 \\ -1+4 \end{pmatrix} = \begin{pmatrix} -3 \\ 3 \end{pmatrix}$	[1]
5(b)	$\begin{pmatrix} 2 \\ 10 \end{pmatrix} + \begin{pmatrix} 8 \\ -4 \end{pmatrix} - \begin{pmatrix} 5 \\ -1 \end{pmatrix} = \begin{pmatrix} 5 \\ 7 \end{pmatrix}$	[1]
5(c)	$\begin{pmatrix} 3 \\ 15 \end{pmatrix} + \begin{pmatrix} 8 \\ -4 \end{pmatrix} = \begin{pmatrix} 11 \\ 11 \end{pmatrix}$	[1]
5(d)	$\begin{pmatrix} 10 \\ -2 \end{pmatrix} - \begin{pmatrix} 4 \\ -2 \end{pmatrix} = \begin{pmatrix} 6 \\ 0 \end{pmatrix}$	[1]
6	$\begin{pmatrix} 3 \\ 2 \end{pmatrix} + \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 3 \\ 0 \end{pmatrix}$ $x = 0 \quad y = -2$	[1] Correct x and y values
	$\begin{pmatrix} 2 \\ 2z \end{pmatrix} + \begin{pmatrix} 0 \\ -2 \end{pmatrix} = \begin{pmatrix} 2 \\ 2 \end{pmatrix}$ $z = 2$	[1] Correct answer

END