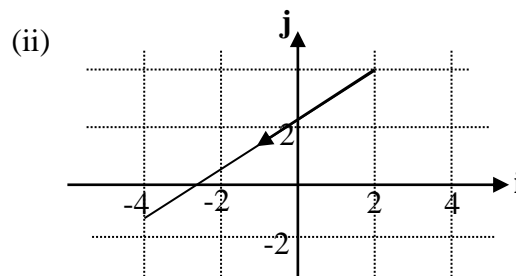
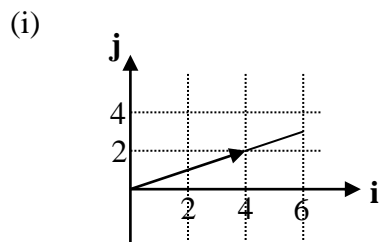


## Section 1: Introduction to vectors

## Exercise level 1

1. Write the following vectors in component form.



2. Find the magnitude of each of these vectors.

- (i)  $3\mathbf{i} + 4\mathbf{j}$
- (ii)  $3\mathbf{i} - 6\mathbf{j}$
- (iii)  $-\mathbf{i} - \mathbf{j}$

3. The points A, B and C have coordinates (4, -1), (3, 7) and (-2, 3) respectively.

Find

- (i)  $\overline{AB}$
- (ii)  $\overline{BA}$
- (iii)  $\overline{AC}$
- (iv)  $\overline{CB}$

4. The vectors  $\mathbf{a}$ ,  $\mathbf{b}$  and  $\mathbf{c}$  are given by  $\mathbf{a} = \begin{pmatrix} 3 \\ -4 \end{pmatrix}$ ,  $\mathbf{b} = \begin{pmatrix} 2 \\ 5 \end{pmatrix}$  and  $\mathbf{c} = \begin{pmatrix} -1 \\ -3 \end{pmatrix}$

Find the vectors

- (i)  $\mathbf{b} + 2\mathbf{a}$
- (ii)  $2\mathbf{c} - \mathbf{b}$
- (iii)  $\mathbf{a} - \mathbf{b} + 3\mathbf{c}$