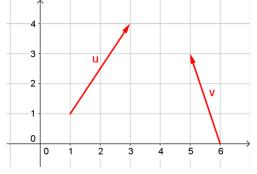# EdExcel AS Mathematics Vectors

Section 1: Introduction to vectors

Section test

1. Write the vector $5\mathbf{i} - 3\mathbf{j}$ in magnitude-direction form.

2. Write the vector $(8, 200°)$ in component form.

3. The points A and B have coordinates (-2, 3) and (2, -5) respectively.
    Find the vector $\overrightarrow{AB}$.

4. The diagram shows two vectors, $\mathbf{u}$ and $\mathbf{v}$.

    Find the vector $\mathbf{u} - \mathbf{v}$.

5. The vectors $\mathbf{a}$, $\mathbf{b}$ and $\mathbf{c}$ are
    $$\mathbf{a} = 5\mathbf{i} - 2\mathbf{j}$$
    $$\mathbf{b} = -3\mathbf{i} + 4\mathbf{j}$$
    $$\mathbf{c} = 5\mathbf{j}$$
    Find the vector $2(\mathbf{a} - \mathbf{b}) + 3\mathbf{c}$.

6. Find the unit vector in the same direction as $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$.

7. The vectors $\begin{pmatrix} 1 \\ -3 \end{pmatrix}$ and $\begin{pmatrix} 5 \\ k \end{pmatrix}$ are parallel. Find the value of k.

8. Given that $p\begin{pmatrix} 2 \\ -1 \end{pmatrix} + \begin{pmatrix} 3 \\ 4 \end{pmatrix} = \begin{pmatrix} q \\ 1 \end{pmatrix}$, find the values of p and q.

9. Two forces are given by $\mathbf{F}_1 = 3\mathbf{i} + 2\mathbf{j}$ and $\mathbf{F}_2 = a\mathbf{i} + b\mathbf{j}$. The resultant of $\mathbf{F}_1$ and $\mathbf{F}_2$
    is
    $7\mathbf{i} - 3\mathbf{j}$. Find the values of a and b.

EdExcel AS Maths Vectors 1 section test

10. In a parallelogram WXYZ, $\overrightarrow{WX} = \mathbf{a}$ and $\overrightarrow{XY} = \mathbf{b}$. The point P is $\frac{2}{3}$ of the way along the diagonal XZ.

    Find the vector $\overrightarrow{YP}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.