

Vector arithmetic

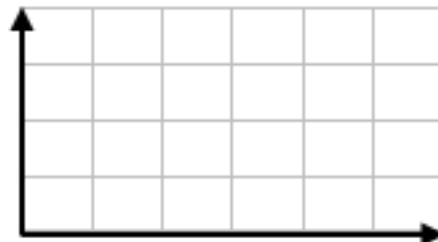
Starter

1. **(Review of last lesson)** Find the magnitude of the vector $\begin{pmatrix} 1 \\ -7 \end{pmatrix}$.

Working: $\left| \begin{pmatrix} 1 \\ -7 \end{pmatrix} \right| = \sqrt{1^2 + (-7)^2} = \sqrt{50} = \sqrt{25 \times 2} = 5\sqrt{2}$

E.g. 1 Let $A(1, 3)$ and $B(5, 2)$. Draw and label the points on the grid.

Find: (a) \vec{AB} and (b) \vec{BA} .



Working: (a) $\vec{AB} = \begin{pmatrix} 4 \\ -1 \end{pmatrix}$

(b) $\vec{BA} = \begin{pmatrix} -4 \\ 1 \end{pmatrix}$

E.g. 2 Let $P(7, -4)$ and $Q(-2, 6)$. Find \vec{PQ}

Working: $\vec{PQ} = \mathbf{q} - \mathbf{p} = \begin{pmatrix} 7 \\ -4 \end{pmatrix} - \begin{pmatrix} -2 \\ 6 \end{pmatrix} = \begin{pmatrix} -9 \\ 10 \end{pmatrix}$

Video: [Vectors](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook: p336 M10.13 Qu 1-5, 13-16

A*-G class textbook: p299 E10.2 Qu 1-5, 11-15

9-1 homework book: p118 M10.13 Qu 1-2, 5, 7

A*-G homework book: p86 E10.2 Qu 1-2, 5, 7

[Homework book answers \(only available during a lockdown\)](#)