Year 8 Knowledge Organiser
VECTORS

Key Concepts

Vectors describe translations.

$\begin{pmatrix} x \\ y \end{pmatrix}$ → + move right, - move left; ↑ + move up, - move down

Examples

Adding vectors:

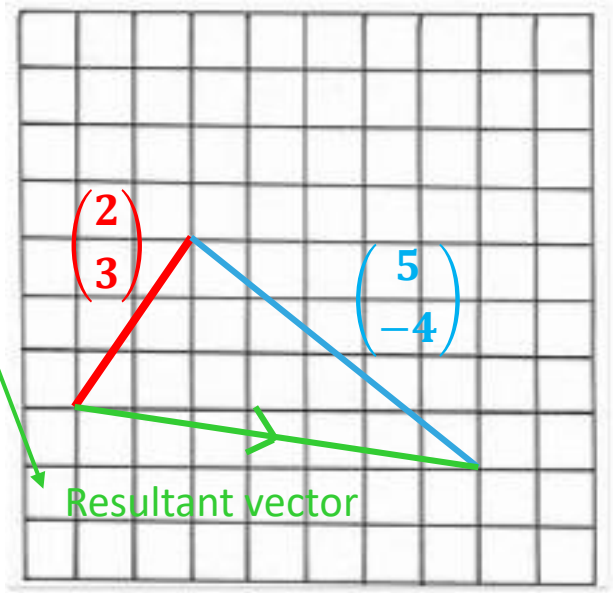
$$\begin{pmatrix} 2 \\ 3 \end{pmatrix} + \begin{pmatrix} 5 \\ -4 \end{pmatrix} = \begin{pmatrix} 2+5 \\ 3+-4 \end{pmatrix} = \begin{pmatrix} 7 \\ -1 \end{pmatrix}$$

Subtracting vectors:

$$\begin{pmatrix} 3 \\ 9 \end{pmatrix} - \begin{pmatrix} 2 \\ -3 \end{pmatrix} = \begin{pmatrix} 3-2 \\ 9--3 \end{pmatrix} = \begin{pmatrix} 1 \\ 12 \end{pmatrix}$$

Vectors and scalar multipliers:

$$2\begin{pmatrix} 8 \\ -3 \end{pmatrix} = \begin{pmatrix} 2\times 8 \\ 2\times -3 \end{pmatrix} = \begin{pmatrix} 16 \\ -6 \end{pmatrix}$$



hegartymaths

622-627

Key Words

Column
Vector
Translation
Resultant

Calculate the resultant vector:

$a)\ \begin{pmatrix} 3 \\ 2 \end{pmatrix} + \begin{pmatrix} 2 \\ -7 \end{pmatrix}$ $b)\ \begin{pmatrix} 5 \\ 2 \end{pmatrix} - \begin{pmatrix} 4 \\ -3 \end{pmatrix}$ $c)\ 3\begin{pmatrix} 3 \\ -2 \end{pmatrix}$

ANSWER $a)\ \begin{pmatrix} 5 \\ -5 \end{pmatrix}$ $b)\ \begin{pmatrix} 1 \\ 5 \end{pmatrix}$ $c)\ \begin{pmatrix} 9 \\ -6 \end{pmatrix}$