

Maths.scot



National 5 Maths

Vector Components

SQA past paper and specimen paper
questions and answers by topic

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Find the resultant vector $2\mathbf{u} - \mathbf{v}$ when $\mathbf{u} = \begin{pmatrix} -2 \\ 3 \\ 5 \end{pmatrix}$ and $\mathbf{v} = \begin{pmatrix} 0 \\ -4 \\ 7 \end{pmatrix}$.

Express your answer in component form.

2

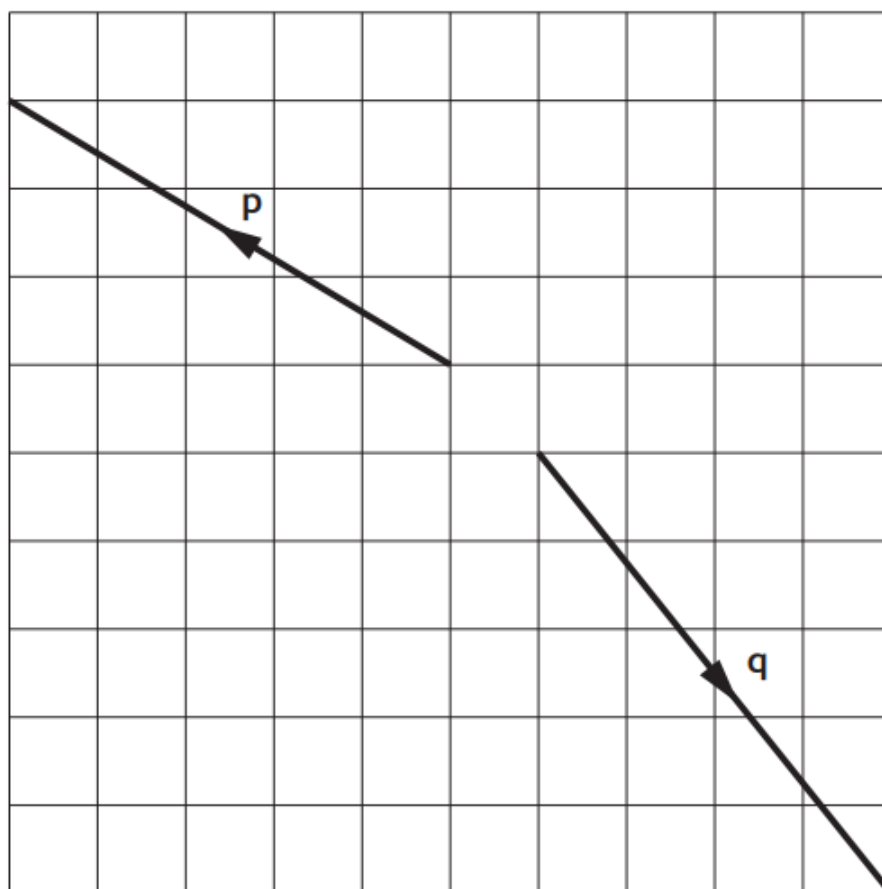
Answer:

$$\begin{pmatrix} -4 \\ 10 \\ 3 \end{pmatrix}$$

The vectors \mathbf{p} and \mathbf{q} are shown in the diagram below.

Find the resultant vector $\mathbf{p} + \mathbf{q}$.

Express your answer in component form.



2

Answer:

$$\begin{pmatrix} -1 \\ -2 \end{pmatrix}$$

National 5 Maths
SQA 2016 Paper 1
Question 1

Given $\mathbf{p} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}$ and $\mathbf{q} = \begin{pmatrix} -5 \\ -1 \end{pmatrix}$.

Find the resultant vector $\frac{1}{2}\mathbf{p} + \mathbf{q}$.

Express your answer in component form.

2

Answer:

$$\begin{pmatrix} -3 \\ -4 \end{pmatrix}$$

National 5 Maths
SQA 2018 Paper 1
Question 4

Two vectors are given by $\mathbf{u} = \begin{pmatrix} 1 \\ 5 \\ 1 \end{pmatrix}$ and $\mathbf{u} + \mathbf{v} = \begin{pmatrix} 6 \\ -4 \\ 3 \end{pmatrix}$.

Find vector \mathbf{v} .

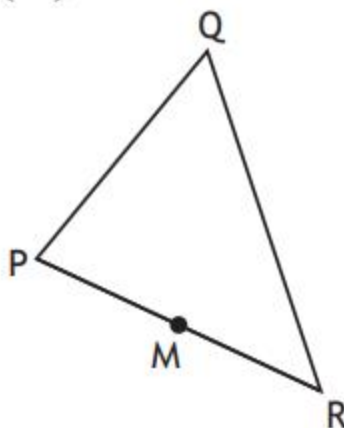
Express your answer in component form.

2

Answer:

$$\begin{pmatrix} 5 \\ -9 \\ 2 \end{pmatrix}$$

In triangle PQR, $\vec{PR} = \begin{pmatrix} 6 \\ -4 \end{pmatrix}$ and $\vec{RQ} = \begin{pmatrix} -1 \\ 8 \end{pmatrix}$.



(a) Express \vec{PQ} in component form.

1

M is the midpoint of PR.

(b) Express \vec{MQ} in component form.

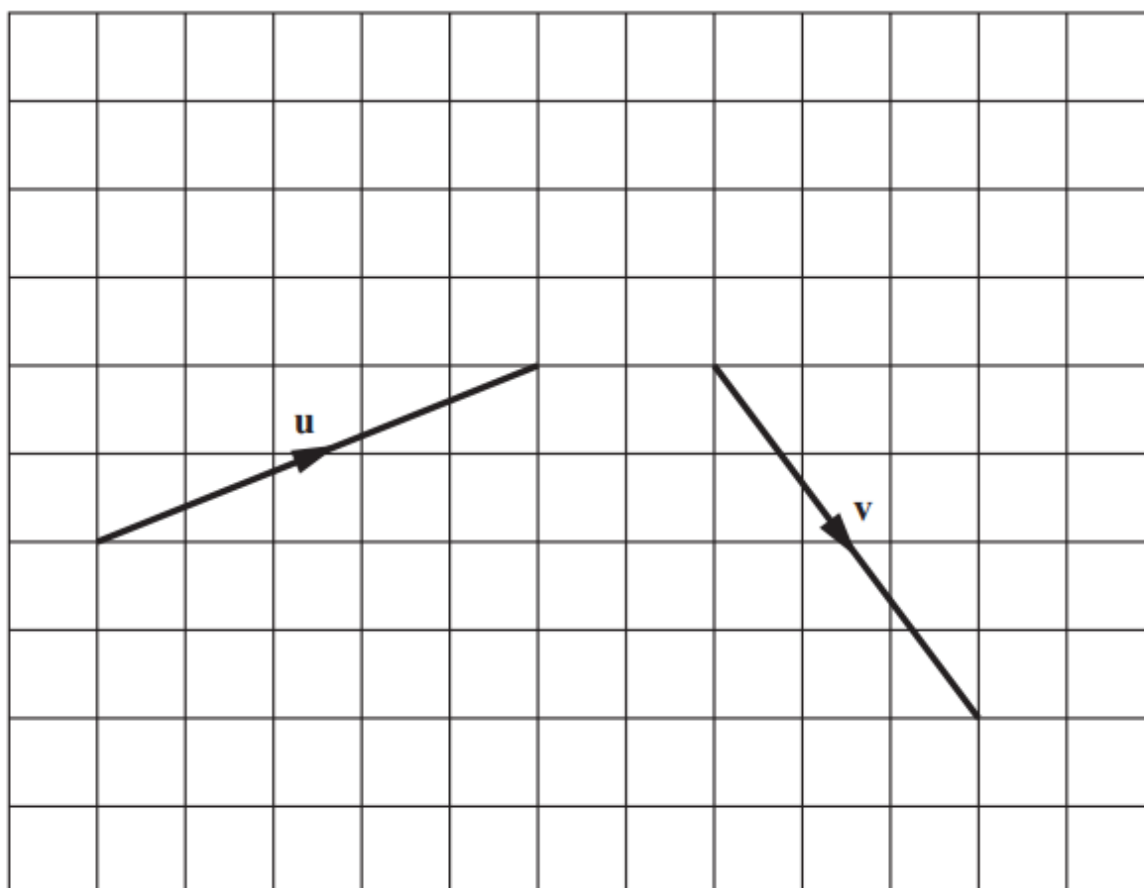
2

Answers:

(a) $\begin{pmatrix} 5 \\ 4 \end{pmatrix}$

(b) $\begin{pmatrix} 2 \\ 6 \end{pmatrix}$

The vectors \mathbf{u} and \mathbf{v} are shown in the diagram below.



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

Express your answer in component form.

2

Answer:

$$\begin{pmatrix} 2 \\ 6 \end{pmatrix}$$

National 5 Maths
SQA 2024 Paper 1
Question 4

Given $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \\ -1 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} 5 \\ 3 \\ 2 \end{pmatrix}$, find the resultant vector $3\mathbf{a} + \mathbf{b}$.

Express your answer in component form.

2

Answer:

$$\begin{pmatrix} 14 \\ 15 \\ -1 \end{pmatrix}$$

National 5 Maths
SQA 2025 Paper 1
Question 13

Vectors \mathbf{p} and \mathbf{q} have components $\mathbf{p} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ and $\mathbf{q} = \begin{pmatrix} 1 \\ -3 \end{pmatrix}$.

Draw the resultant vector $\mathbf{p} + \mathbf{q}$ on the grid.

2

Answer:

$$\begin{pmatrix} 6 \\ -1 \end{pmatrix}$$

