

Adding vectors

A LEVEL LINKS

Scheme of work: 5a. Definitions, magnitude/direction, addition and scalar multiplication

Practice questions

1

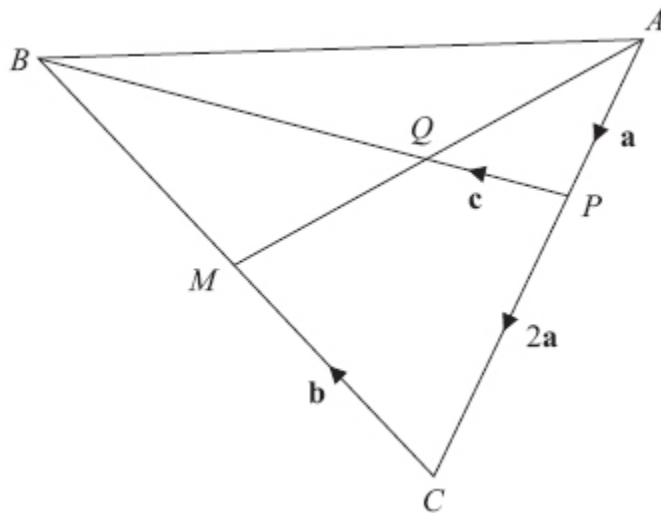


Diagram NOT accurately drawn

M is the midpoint of BC .
 Q is the midpoint of AM .

$$\vec{AP} = \mathbf{a} \quad \vec{PC} = 2\mathbf{a} \quad \vec{CM} = \mathbf{b} \quad \vec{PQ} = \mathbf{c}$$

(a) Find \vec{AM} in terms of \mathbf{a} and \mathbf{b} .

$$\vec{AM} = \dots\dots\dots$$

(b) Find \vec{QB} in terms of \mathbf{c} .

$$\vec{QB} = \dots\dots\dots$$

2

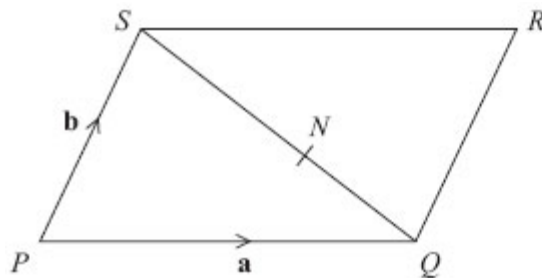


Diagram **NOT**
accurately drawn

$PQRS$ is a parallelogram.

N is the point on SQ such that $SN : NQ = 3 : 2$

$$\vec{PQ} = \mathbf{a}$$

$$\vec{PS} = \mathbf{b}$$

(a) Write down, in terms of \mathbf{a} and \mathbf{b} , an expression for \vec{SQ} .

$$\vec{SQ} = \dots\dots\dots$$

(b) Express \vec{NR} in terms of \mathbf{a} and \mathbf{b} .

$$\vec{NR} = \dots\dots\dots$$

Answers

1 (a) $3\mathbf{a} + \mathbf{b}$

(b) $3\mathbf{c}$

2 (a) $\mathbf{a} - \mathbf{b}$

(b) $\frac{2}{5}\mathbf{a} + \frac{3}{5}\mathbf{b}$