VECTORS

Name:

BAM Indicator: Understand and use vectors

1. If $\boldsymbol{a} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$ and $\boldsymbol{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$, find: **F**

   a) $\boldsymbol{a} + \boldsymbol{b}$

   _____

   b) $2\boldsymbol{a} + \boldsymbol{b}$

   _____

   c) $\boldsymbol{a} - 2\boldsymbol{b}$

   _____

   d) $\frac{1}{2}(\boldsymbol{a} + \boldsymbol{b})$

   _____

2. $\boldsymbol{a} = \begin{pmatrix} 4 \\ -2 \end{pmatrix}$, $\boldsymbol{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$ and $\boldsymbol{c} = 3\boldsymbol{a} + 2\boldsymbol{b}$ **R**

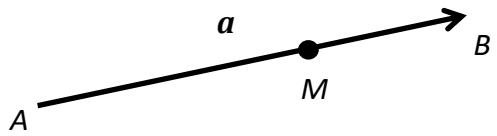
   Explain why $\boldsymbol{c}$ can also be written as $\begin{pmatrix} 10 \\ -2 \end{pmatrix}$.

3. $\overrightarrow{AB} = \boldsymbol{a}$ **M**

   M divides *AB* in the ratio 2:1

   Brian says that $\overrightarrow{AM} = \frac{1}{2}\boldsymbol{a}$.

   Explain why Brian is wrong.



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4. A boat is travelling across a river at a speed of 3 ms^{-1}.

The current is flowing at 4 ms^{-1}.

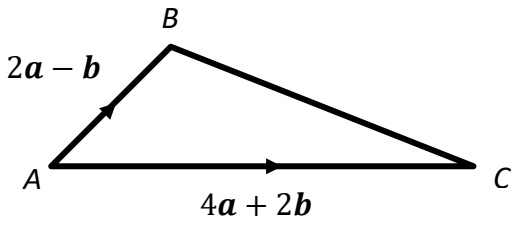
What is the actual speed of the boat?

A

5. The line *DE* is 4 times longer than *BC*.

$\overrightarrow{DE}$ is in the opposite direction of $\overrightarrow{BC}$

Express $\overrightarrow{DE}$ in terms of $\boldsymbol{a}$ and $\boldsymbol{b}$.



P

Overall, I think my success level is:	Low ○ ○ ○ ○ High

F = Fluency R = Reasoning P = Problem-solving A = Application M = Misconception

Q	**VECTORS**	☺	☹
	I can add and subtract vectors		
	I can multiply by a vector by a scalar		
	I can express a vector in terms of known vectors		
	I can find a resultant from given vectors		

Improvements I could make:

Mathematical presentation	Method	Accuracy	Units

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