Doing some vector operations

✓ **Congratulations! You passed!**

Next Item

✔

1.

1 / 1
point
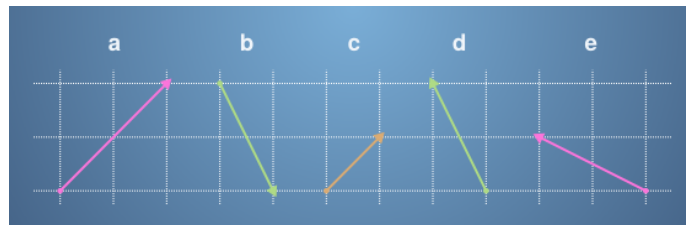
This quiz will be to familiarise yourself with vectors and some basic vector operations.

For the following questions, the vectors **a**, **b**, **c**, **d** and **e** refer to those in this diagram:

What is the numerical representation of the vector **a**?

○ $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$

○ $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$

○ $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$

◉ $\begin{bmatrix} 2 \\ 2 \end{bmatrix}$

Correct
You can get the numerical representation by following the arrow along the grid.

2. Which vector corresponds to $\begin{bmatrix} -1 \\ 2 \end{bmatrix}$?

1 / 1 point

○ Vector **a**

○ Vector **b**

○ Vector **c**

● Vector **d**

Correct
You can get the numerical representation by following the arrow along the grid.

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3. What vector is $2\mathbf{c}$?

1 / 1 point

Please select all correct answers.

☐ $\begin{bmatrix} -2 \\ 2 \end{bmatrix}$

Un-selected is correct

☑ **a**

Correct
Multiplying by a positive scalar is like stretching out a vector in the same direction.

☑ $\begin{bmatrix} 2 \\ 2 \end{bmatrix}$

Correct
A scalar multiple of a vector can be calculated by multiplying each component.

☐ **e**

▲

Un-selected is correct

✓ 4. What vector is $-\mathbf{b}$?

1 / 1 point

Please select all correct answers.

☑ $\begin{bmatrix} -1 \\ 2 \end{bmatrix}$

▲

Correct
A scalar multiple of a vector can be calculated by multiplying each component.

☐ $\begin{bmatrix} -2 \\ 1 \end{bmatrix}$

▲

Un-selected is correct

☑ **d**

▲

Correct
Multiplying by a negative changes the direction of the vector.

☐ **e**

▲

Un-selected is correct

✓ 5. What is the vector $\mathbf{b} + \mathbf{e}$?

1 / 1

(●) $\begin{bmatrix} -1 \\ -1 \end{bmatrix}$

Correct
You add vectors entry by entry.

( ) $\begin{bmatrix} 1 \\ 3 \end{bmatrix}$

( ) $\begin{bmatrix} 2 \\ -1 \end{bmatrix}$

( ) $\begin{bmatrix} -1 \\ 2 \end{bmatrix}$

✔ 6. What is the vector $\mathbf{d} - \mathbf{b}$?

1 / 1
point

( ) $\begin{bmatrix} 4 \\ -2 \end{bmatrix}$

(●) $\begin{bmatrix} -2 \\ 4 \end{bmatrix}$

Correct
Remember that vectors add by attaching the end of one to the start of the other.

( ) $\begin{bmatrix} 2 \\ -4 \end{bmatrix}$

( ) $\begin{bmatrix} -4 \\ 2 \end{bmatrix}$