

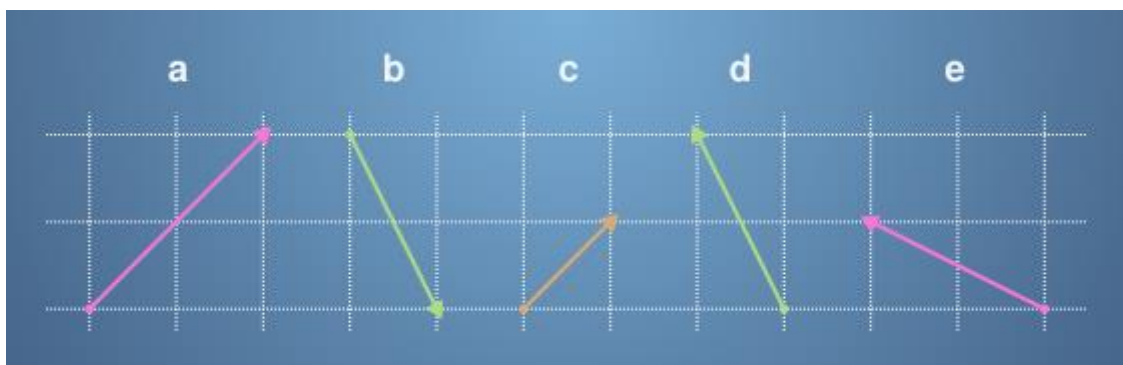
Doing some vector operations

TOTAL POINTS 7

1.Question 1

This aim of this quiz is 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:



The sides of each square on the grid are of length 11. What is the numerical representation of the vector a ?

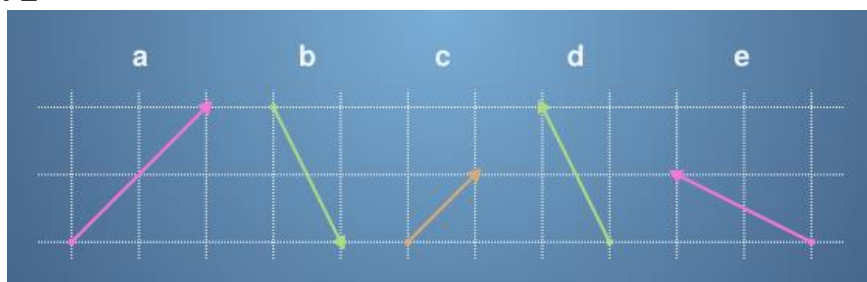
- ☐ [1 1]
- ☐ [2 1]
- ☒ [2 2]
- ☐ [1 2]

Correct

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

1 / 1 point

2.Question 2



Which vector in the diagram corresponds to

[-1 2]?

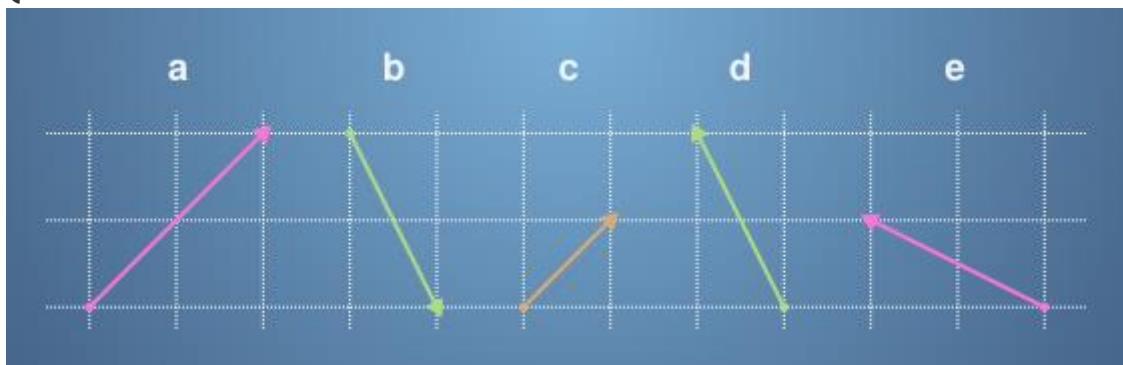
- ☐ Vector **a**
- ☐ Vector **b**
- ☐ Vector **c**
- ☒ Vector **d**

Correct

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

1 / 1 point

3.Question 3



What vector is 2c?

Please select all correct answers.

- ☒ **a**

Correct

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

- ☒ **[2 2]**

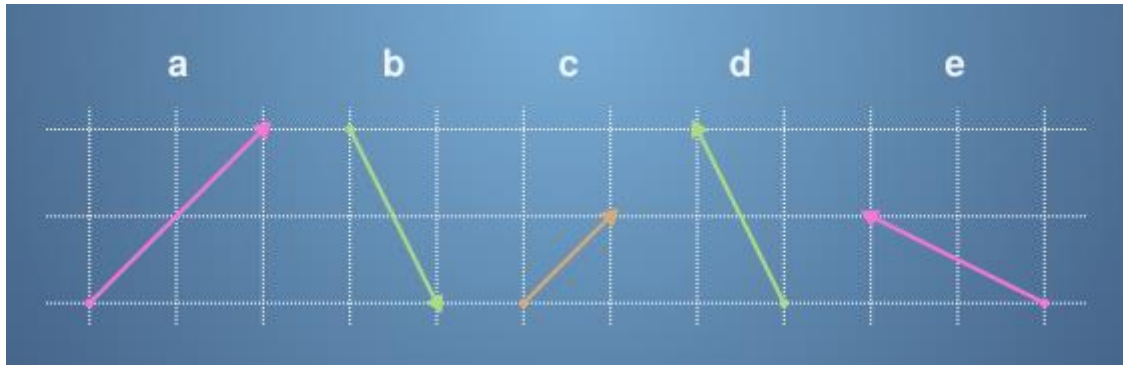
Correct

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

- ☐ **[-2 2]**
- ☐ **e**

1 / 1 point

4.Question 4



What vector is $-b$?

Please select all correct answers.

☒ $[-1\ 2]$

Correct

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

☐ e

☒ d

Correct

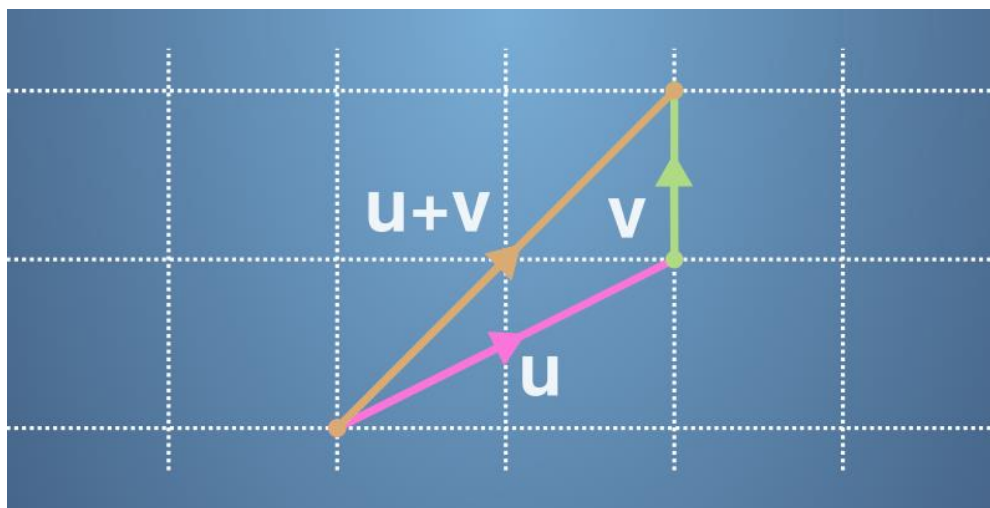
Multiplying by a negative number points the vector in the opposite direction.

☐ $[-2\ 1]$

1 / 1 point

5.Question 5

In the previous videos you saw that vectors can be added by placing them start-to-end. For example, the following diagram represents the sum of two new vectors, $\mathbf{u} + \mathbf{v}$:



The sides of each square on the grid are still of length 11. Which of the following equations does the diagram represent?

- ☐ $[1\ 1] + [1\ 0] = [2\ 1]$
- ☐ $[1\ 2] + [0\ 1] = [2\ 2]$
- ☐ $[1\ 2] + [1\ 0] = [2\ 2]$
- ☒ $[2\ 1] + [0\ 1] = [2\ 2]$

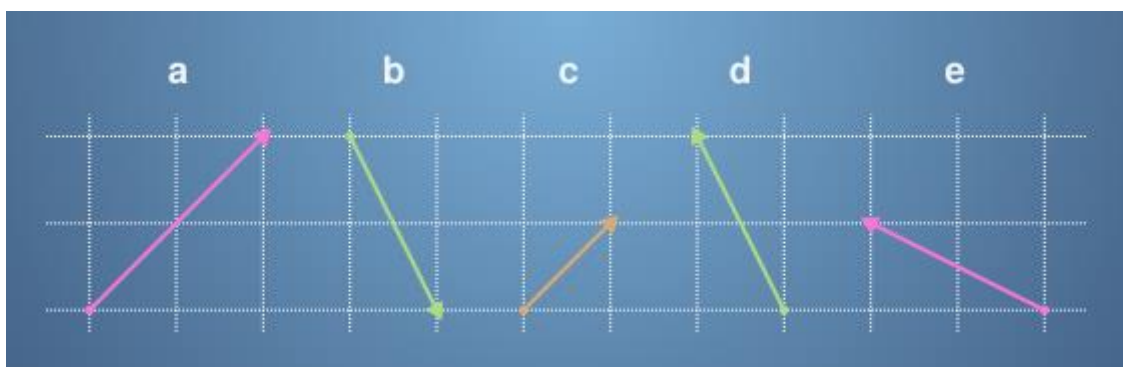
Correct

We can see that summing the vectors by adding them start-to-end and adding up the individual components gives us the same answer.

1 / 1 point

6.Question 6

Let's return to our vectors defined by the diagram below:



What is the vector $b+e$?

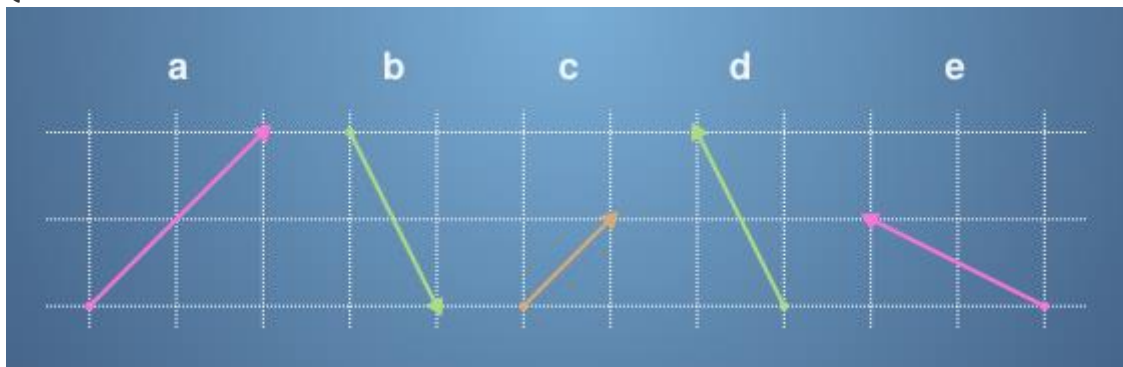
- ☐ $[2\ -1]$
- ☐ $[1\ 3]$
- ☐ $[-1\ 2]$
- ☒ $[-1\ -1]$

Correct

Vectors are added together entry by entry. They can also be thought of as adding start to end, like in the following diagram:

1 / 1 point

7.Question 7



What is the vector $d-b$?

- ☐ [2 -4]
- ☒ [-2 4]
- ☐ [4 -2]
- ☐ [-4 2]

Correct

Remember that vectors add by attaching the end of one to the start of the other, and that multiplying by a negative number points the vector in the opposite direction.