<u>Help</u>

sandipan_dey ~

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☆ Course / Unit 2: Geometry of Derivatives / Problem Set 2A

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2. Vector addition

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Problem Set A due Aug 18, 2021 20:30 IST Completed

2A-4

3.0/3 points (graded)

What is the vector \vec{v} that starts at the point (1,0) and ends at (2,2)?

(Enter the vector in the form <code>[a,b]</code>. That is surround your vector by square brackets, and separate entries by a comma. Note that the entries of your vector must be numbers.)

$$\vec{v} =$$
 [1,2] $ightharpoonup$ Answer: [1,2]

Imagine the line segment from (1,0) to (2,2). Suppose we start at (1,0) and follow this line segment one third of the way to (2,2). What point do we end up at?

(Enter the ordered pair in round parentheses, e.g. (x, y).)

Imagine the line segment from (1,0) to (2,2). Suppose we start at (1,0) and go a distance of 0.5 along this line segment. What point do we end up at?

(Enter the ordered pair in parentheses, e.g. (x, y).)

? INPUT HELP

Solution:

The vector from a point (x_1, y_1) to a point (x_2, y_2) is given by subtracting the coordinates of the beginning point from the coordinates of the endpoint. In this case, we have

$$\vec{v} = \langle 2, 2 \rangle - \langle 1, 0 \rangle = \langle 1, 2 \rangle.$$

The vector \vec{v} above is the vector from (1,0) to (2,2). So to go a third of the way from (1,0) to (2,2), we should add $\frac{1}{3}\vec{v}$ to $\langle 1,0 \rangle$. So the point we end up at is

$$(1,0)+\left(rac{1}{3},rac{2}{3}
ight)=\left(rac{4}{3},rac{2}{3}
ight).$$

To go a distance of 0.5 along the line segment from (1,0) to (2,2), we add a vector \vec{w} to $\langle 1,0 \rangle$ where \vec{w} is in the same direction as \vec{v} and has length 0.5. The unit vector in the direction of \vec{v} is $\langle 1/\sqrt{5}, 2/\sqrt{5} \rangle$. So \vec{w} is given by

$$ec{w}=rac{1}{2}\langle 1/\sqrt{5},2/\sqrt{5}
angle =\langle rac{1}{2\sqrt{5}},rac{1}{\sqrt{5}}
angle .$$

Adding this to $\langle 1,0 \rangle$ means we end up at the point

$$(1,0)+\left(rac{1}{2\sqrt{5}},rac{1}{\sqrt{5}}
ight)=\left(1+rac{1}{2\sqrt{5}},rac{1}{\sqrt{5}}
ight).$$

Submit

You have used 2 of 5 attempts

1 Answers are displayed within the problem

2. Vector addition

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Topic: Unit 2: Geometry of Derivatives / 2. Vector addition

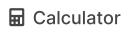
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? Mismatch in grading For 2A-4 I got the second answer correct	but the grader marked as incorrect. I am not sure what I am missing here.	8
error hey my answer was right but it wasnt according to the second secon	epted.	3
? Answer check on part III of 2A-4 Without giving away, I thought I had part III down pretty much in my head. If staff can see my answer, what am I missing?		6
? Staff: Answer Check Hello, I was wondering if someone from the	ne staff could check my answer to part 3; the problem is probably with me and not the gra	2
[Staff] Missing Backslash		2
The problem disappeared. Lgot an error message stating the following	ng: "Could not format HTML for problem. Contact course staff in the discussion forum for a	3
? I had a * on an answer Hi Jennifer. I got an "*" on an answer. I car	nnot figure why. Can you have a look? Thanks	3

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