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16. Exam

Exam due Oct 15, 2021 21:30 IST Completed

16 (a)

1 point possible (graded, results hidden)

Suppose that c is the curve parametrized by $\begin{pmatrix} 2t \\ t^2 \end{pmatrix}$ as t goes from 0 to 2. Find a vector which is tangent to c at the point $(2, 1)$.

(Enter vector components separated by commas and surrounded by square brackets: e.g. `[1,0]`.)

[1,1]

Find a vector which is normal to c at the point $(2, 1)$.

(Enter vector components separated by commas and surrounded by square brackets: e.g. `[1,0]`.)

[1,-1]

? INPUT HELP

Submit

Answer submitted.

16 (b)

1 point possible (graded, results hidden)

The following picture shows a parametrized curve in the plane.

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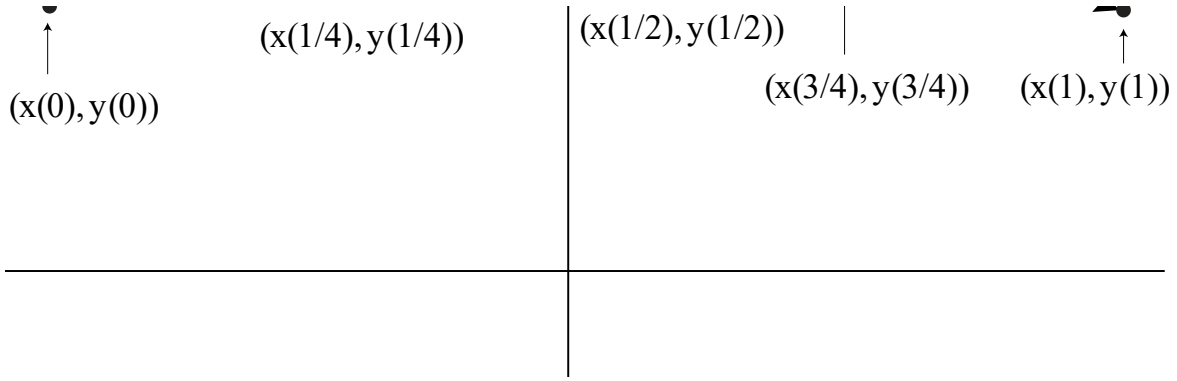

The points labelled on the curve are $(x(0), y(0))$, $(x(1/4), y(1/4))$, $(x(1/2), y(1/2))$, $(x(3/4), y(3/4))$, and $(x(1), y(1))$. The vector $\vec{v}$ goes from $(x(1/2), y(1/2))$ to $(x(3/4), y(3/4))$.

Which of the following four choices is the best approximation of the vector $\vec{v}$?

- $\frac{1}{4}\left(x'\left(\frac{1}{2}\right), y'\left(\frac{1}{2}\right)\right)$
- $\frac{1}{2}\left(x'\left(\frac{1}{2}\right), y'\left(\frac{1}{2}\right)\right)$
- $\frac{3}{4}\left(x'\left(\frac{1}{2}\right), y'\left(\frac{1}{2}\right)\right)$
- $\left(x'\left(\frac{1}{2}\right), y'\left(\frac{1}{2}\right)\right)$

Submit

Answer submitted.

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