WebAssign
Hw 6 (13.2): Der. and Int. of Vector Functions (Homework)

Yinglai Wang
MA 261 Fall 2012, section 121, Fall 2012
Instructor: David Daniels

Current Score : 20 / 20 **Due :** Tuesday, September 4 2012 11:00 PM EDT

1. 2.5/2.5 points | Previous Answers SCalcET7 13.2.003.

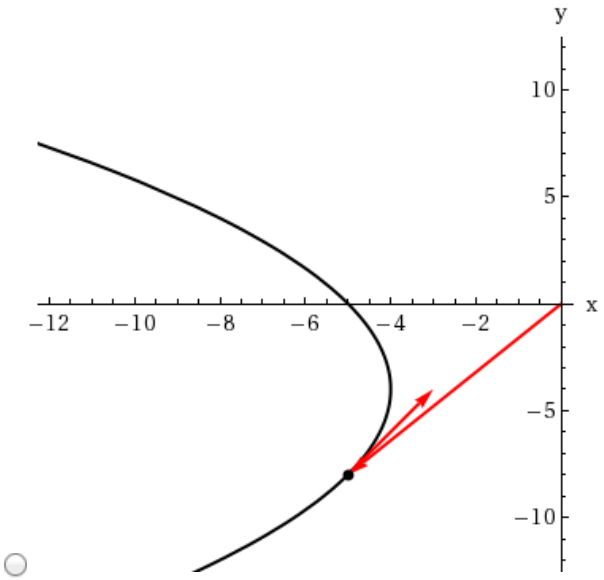
Consider the given vector equation.

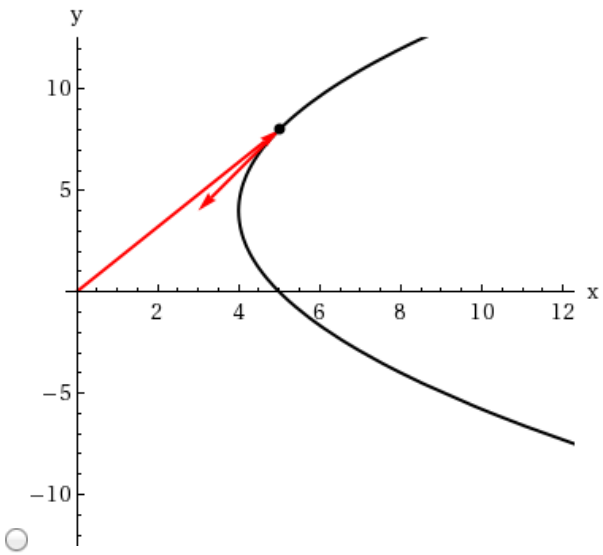
$\mathbf{r}(t) = \langle 4t - 4, t^2 + 4 \rangle, \quad t = -1$

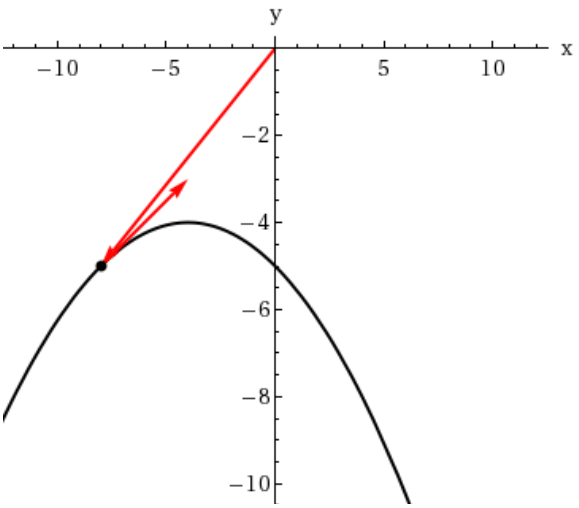
(a) Find $\mathbf{r}'(t)$.

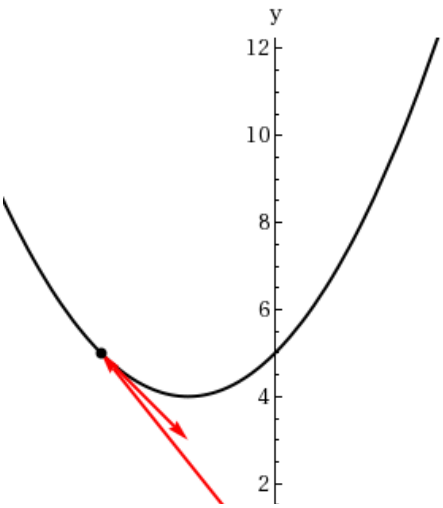
$\mathbf{r}'(t) =$

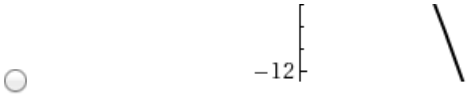
(b) Sketch the plane curve together with the position vector $\mathbf{r}(t)$ and the tangent vector $\mathbf{r}'(t)$ for the given value of t.











Need Help? Read It Watch It Chat About It

---

2. 2.5/2.5 points | Previous Answers SCalcET7 13.2.005.

Consider the given vector equation.

$\mathbf{r}(t) = 5 \sin t\mathbf{i} + 2 \cos t\mathbf{j}, \quad t = \pi/3$

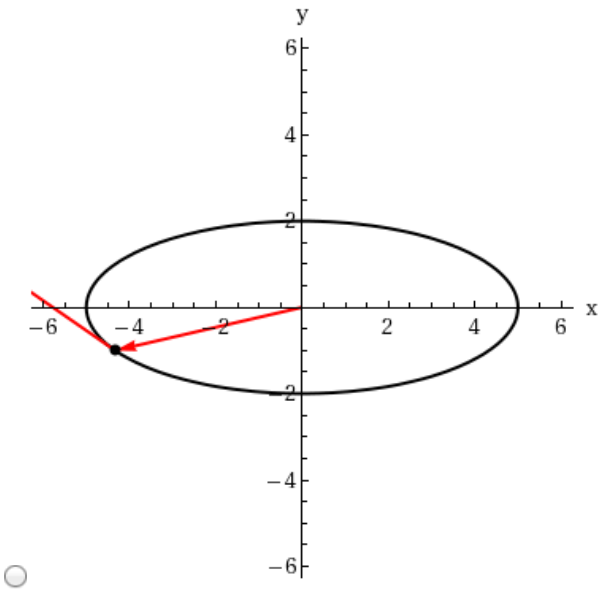
(a) Find $\mathbf{r}'(t)$.

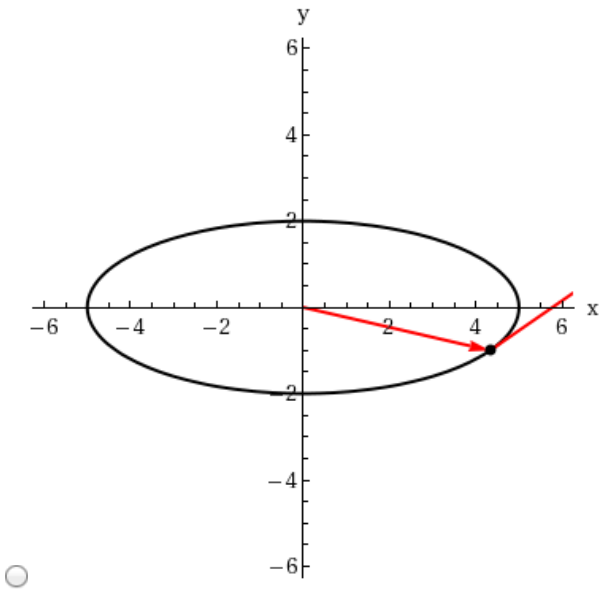
$\mathbf{r}'(t) =$

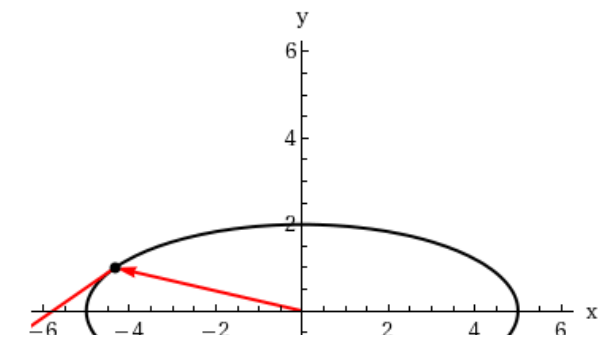
Get ADOBE FLASH PLAYER

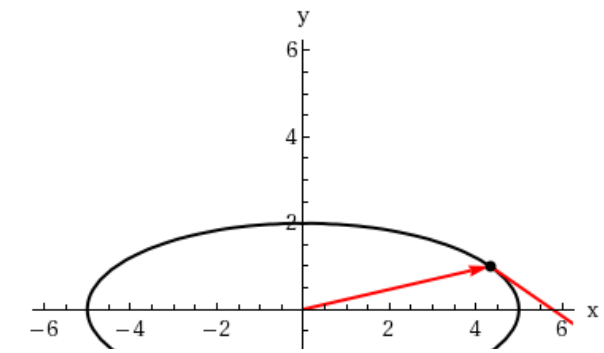
Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

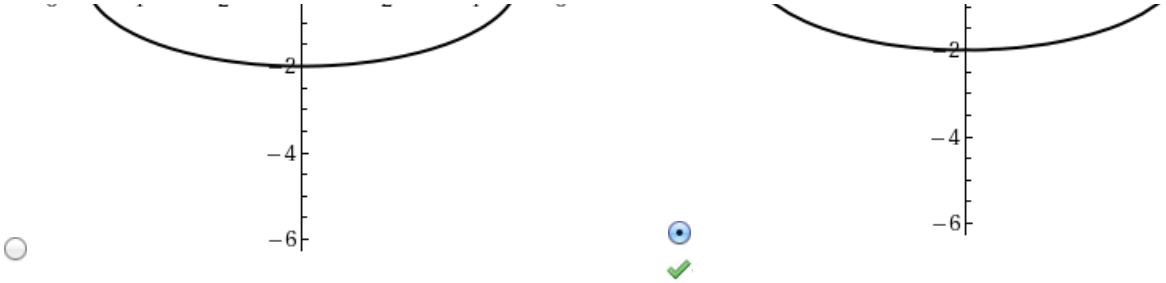
(b) Sketch the plane curve together with position vector $\mathbf{r}(t)$ and the tangent vector $\mathbf{r}'(t)$ for the given value of t.











Need Help? Read It Watch It Chat About It

---

3. 2.5/2.5 points | Previous Answers SCalcET7 13.2.009.MI.

Find the derivative, $\mathbf{r}'(t)$, of the vector function.

$$\mathbf{r}(t) = \langle t \sin 4t\ ,\ t^2,\ t \cos 6t \rangle$$

$\mathbf{r}'(t) =$

Get ADOBE FLASH PLAYER

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

Need Help? Read It Master It Chat About It

---

4. 2.5/2.5 points | Previous Answers SCalcET7 13.2.014.

Find the derivative, $\mathbf{r}'(t)$, of the vector function.

$$\mathbf{r}(t) = at \cos 2t\mathbf{i} + b \sin^3 t\mathbf{j} + c \cos^5 t\mathbf{k}$$

$\mathbf{r}'(t) =$

Get ADOBE FLASH PLAYER

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

Need Help? Read It Chat About It

5. 2.5/2.5 points | Previous Answers SCalcET7 13.2.015.

Find the derivative, $\mathbf{r}'(t)$, of the vector function.

$$\mathbf{r}(t) = \mathbf{a} + 2t\mathbf{b} + t^4\mathbf{c}$$

$\mathbf{r}'(t) =$

Get ADOBE FLASH PLAYER

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

Need Help? Read It Watch It Chat About It

6. 2.5/2.5 points | Previous Answers SCalcET7 13.2.023.

Find parametric equations for the tangent line to the curve with the given parametric equations at the specified point.

$$x = 1 + 12\sqrt{t},\ y = t^4 - t,\ z = t^4 + t;\ (13, 0, 2)$$

$\big(x(t), y(t), z(t)\big) = ($

Get ADOBE FLASH PLAYER

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

$)$

Need Help? Read It Chat About It

7. 2.5/2.5 points | Previous Answers SCalcET7 13.2.038.

Evaluate the integral.

$$\int_6^7 \left(t^2\mathbf{i} + t\sqrt{t-6}\,\mathbf{j} + t\sin \pi t\mathbf{k}\right)dt$$

Get ADOBE FLASH PLAYER

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

Need Help? Read It Chat About It

8. 2.5/2.5 points | Previous Answers SCalcET7 13.2.047.

If $\mathbf{u}(t) = \langle \sin 5t, \cos 2t, t \rangle$ and $\mathbf{v}(t) = \langle t, \cos 2t, \sin 5t \rangle$, use Formula 4 of this theorem to find

$$\frac{d}{dt}\left[\mathbf{u}(t) \cdot \mathbf{v}(t)\right].$$

Flash Player version 10 or higher is required for this question.
You can get Flash Player free from Adobe's website.

Need Help? Read It Chat About It