WebAssign
Hw 31 (10.1): Curves by Parametric Equations (Homework)

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MA 162 Spring 2012, section 321, Spring 2012
Instructor: Jonathan Montano

Current Score : – / 20 **Due :** Thursday, April 12 2012 11:55 PM EDT

The due date for this assignment is past. Your work can be viewed below, but no changes can be made.

Important! Before you view the answer key, decide whether or not you plan to request an extension. Your Instructor may *not* grant you an extension if you have viewed the answer key. Automatic extensions are not granted if you have viewed the answer key.

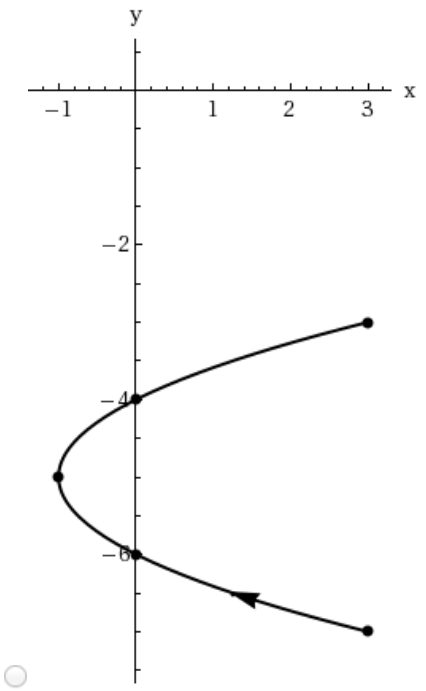
View Key

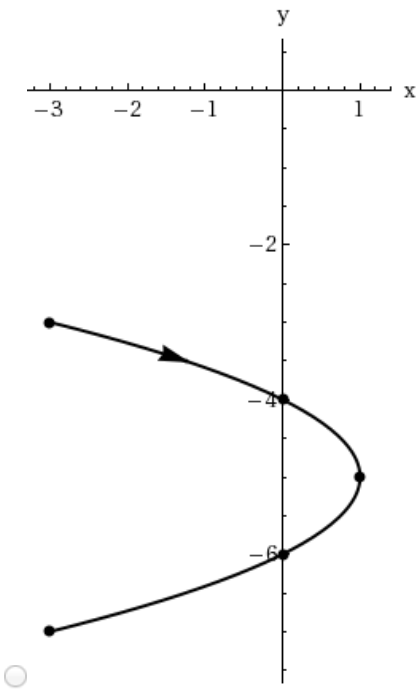
1. –/2.85 points SCalcET7 10.1.007.

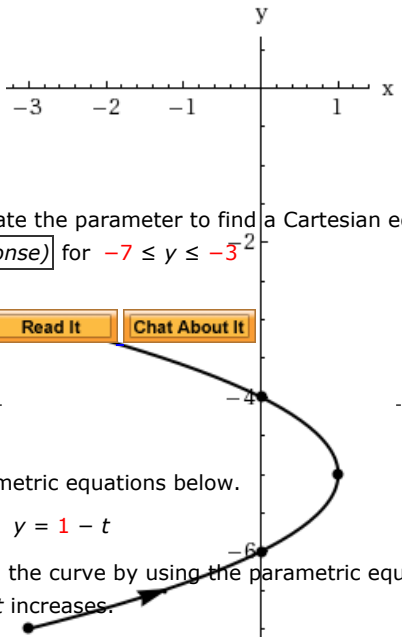
Consider the following equations.

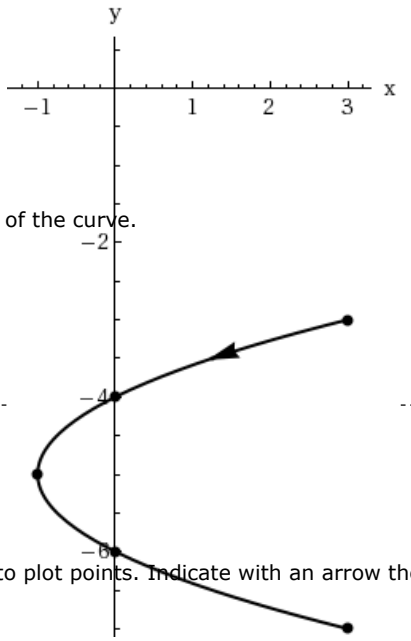
$x = 1 - t^2, \quad y = t - 5, \quad -2 \le t \le 2$

(a) Sketch the curve by using the parametric equations to plot points. Indicate with an arrow the direction in which the curve is traced as t increases.









(b) Eliminate the parameter to find a Cartesian equation of the curve.

(No Response) for $-7 \le y \le -3$

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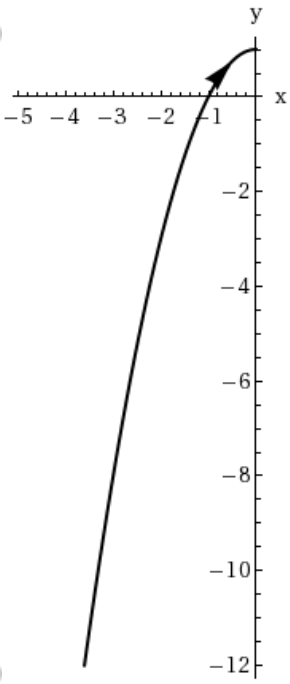
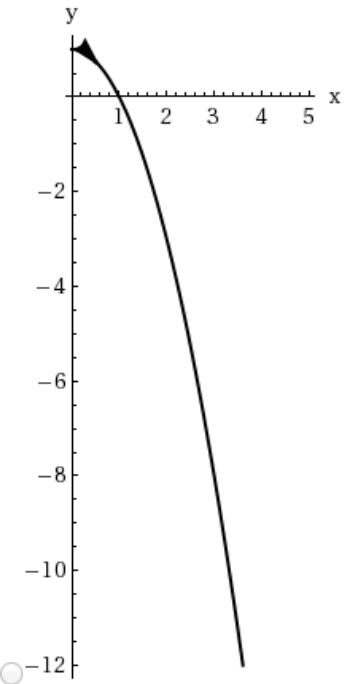
2. –/2.85 points SCalcET7 10.1.009.

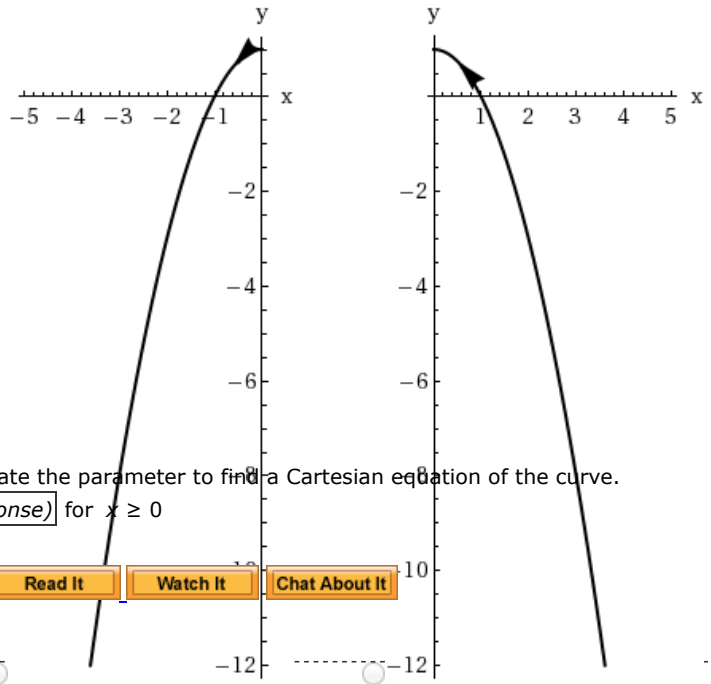
Consider the parametric equations below.

$x = \sqrt{t}, \quad y = 1 - t$

(a) Sketch the curve by using the parametric equations to plot points. Indicate with an arrow the direction in which the curve is traced as t increases.







(b) Eliminate the parameter to find a Cartesian equation of the curve.

(No Response) for $x \geq 0$

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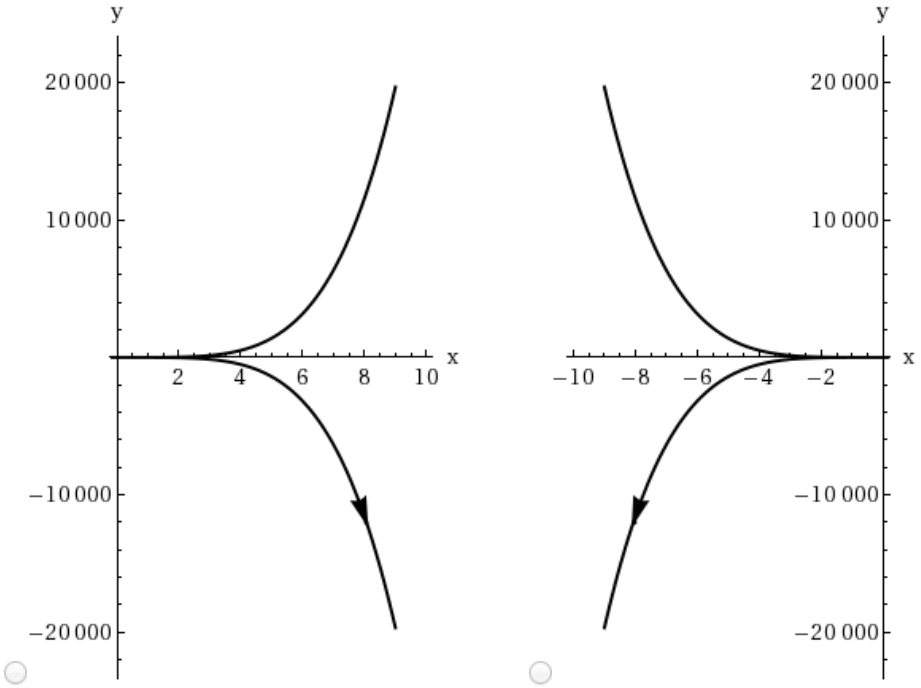
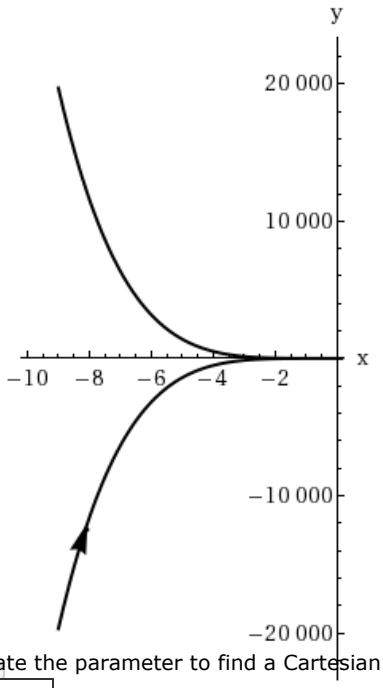
3. –/2.85 points SCalcET7 10.1.010.

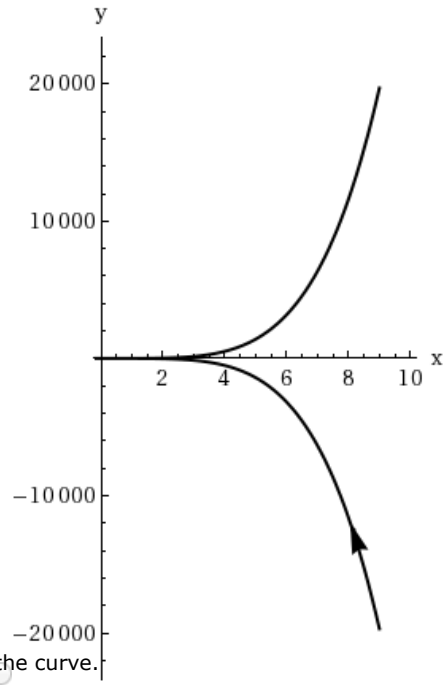
Consider the parametric equations below.

$x = t^2, \quad y = t^9$

(a) Sketch the curve by using the parametric equations to plot points. Indicate with an arrow the direction in which the curve is traced as t increases.







(b) Eliminate the parameter to find a Cartesian equation of the curve.

(No Response)

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4. −/2.85 points SCalcET7 10.1.013.

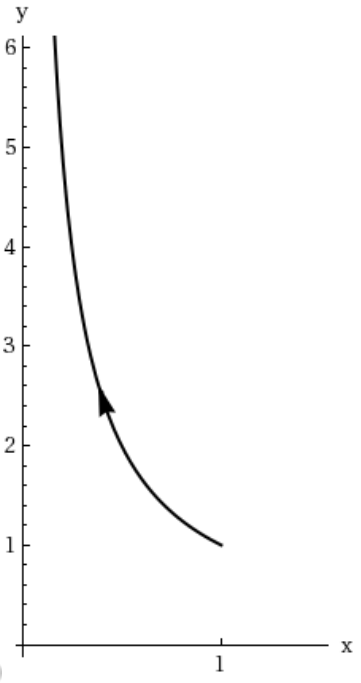
Consider the following.

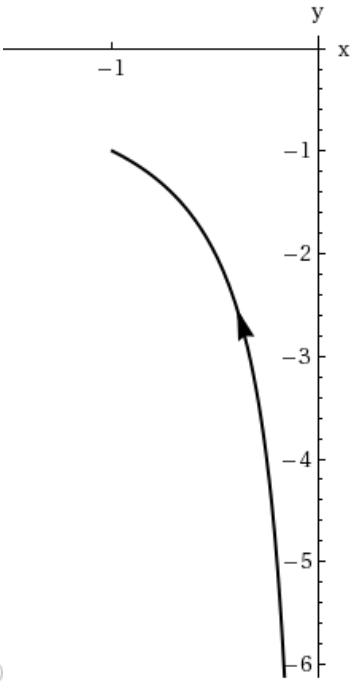
$x = \sin t, \quad y = \csc t, \quad 0 < t < \pi/2$

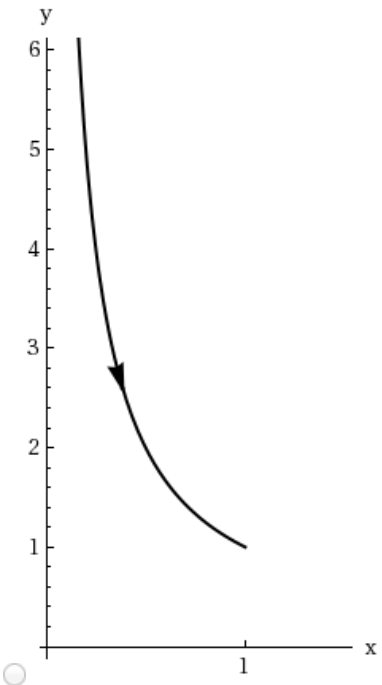
(a) Eliminate the parameter to find a Cartesian equation of the curve.

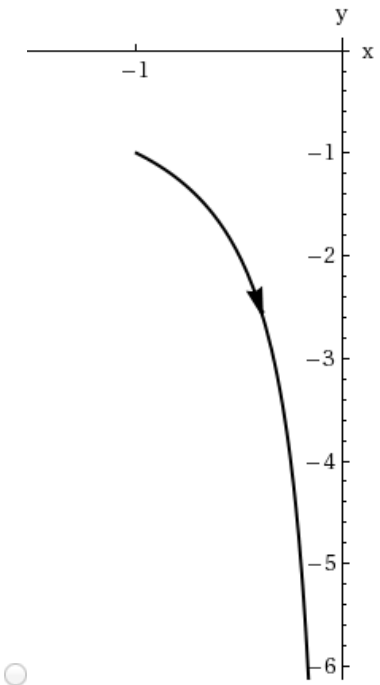
(No Response)

(b) Sketch the curve and indicate with an arrow the direction in which the curve is traced as the parameter increases.









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5. −/2.85 points SCalcET7 10.1.015.

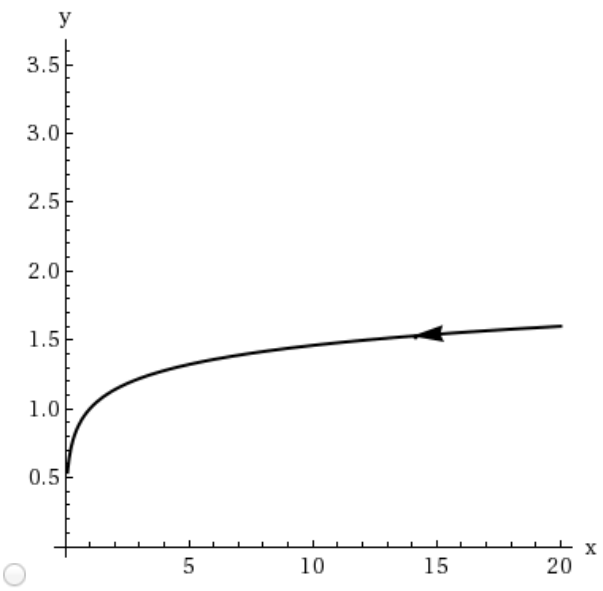
Consider the following.

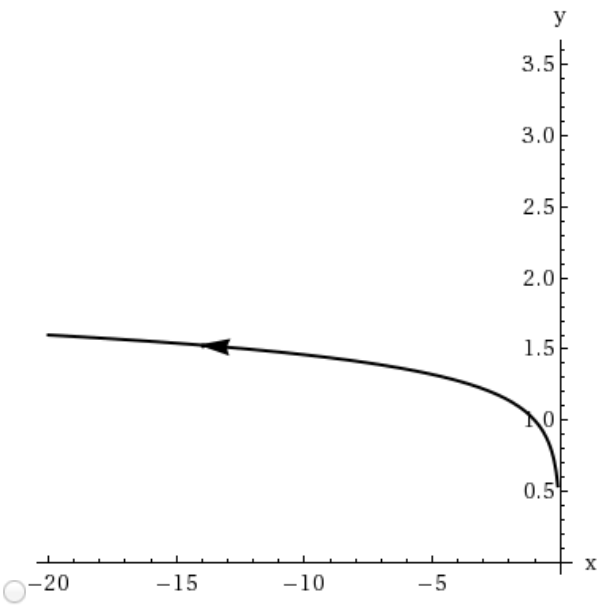
$x = e^{5t}, \quad y = t + 1$

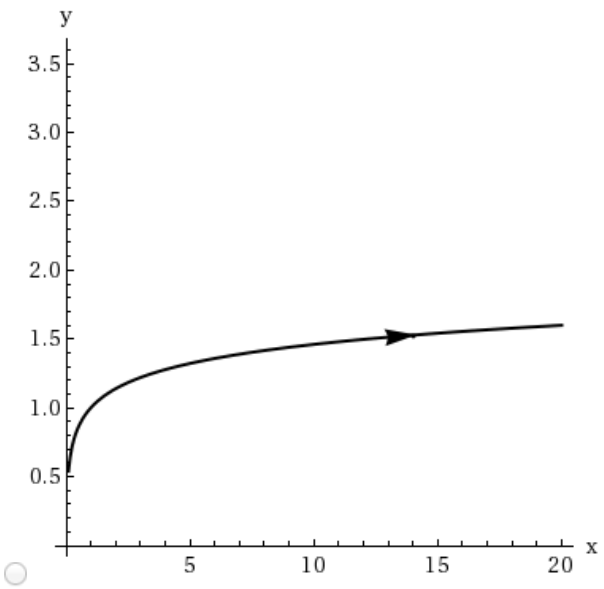
(a) Eliminate the parameter to find a Cartesian equation of the curve.

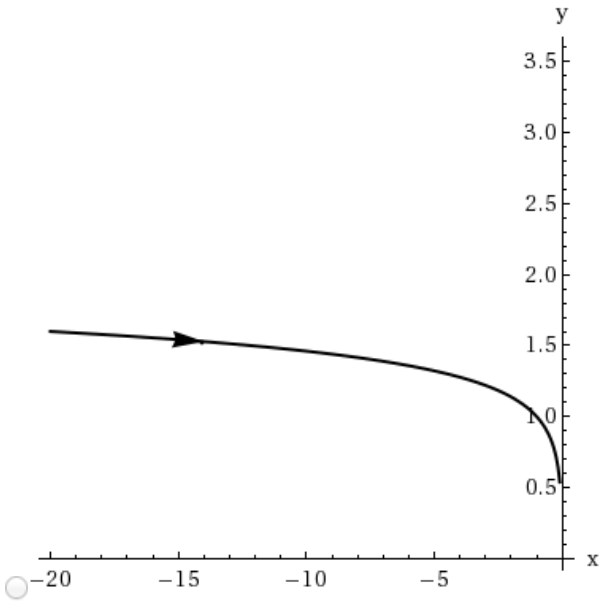
(No Response)

(b) Sketch the curve and indicate with an arrow the direction in which the curve is traced as the parameter increases.









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6. –/2.85 points SCalcET7 10.1.033.

Find parametric equations for the path of a particle that moves along the circle $x^2 + (y - 1)^2 = 16$ in the manner described. (Enter your answer as a comma-separated list of equations. Let x and y be in terms of t.)

(a) Once around clockwise, starting at (4, 1). $0 \le t \le 2\pi$.

(No Response)

(b) Two times around counterclockwise, starting at (4, 1). $0 \le t \le 4\pi$.

(No Response)

(c) Halfway around counterclockwise, starting at (0, 5). $0 \le t \le \pi$.

(No Response)

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7. –/2.9 points SCalcET7 10.1.046.

If a projectile is fired with an initial velocity of v_0 meters per second at an angle α above the horizontal and air resistance is assumed to be negligible, then its position after t seconds is given by the parametric equations

$$x = (v_0 \cos \alpha)t \quad y = (v_0 \sin \alpha)t - \frac{1}{2}gt^2$$

where g is the acceleration due to gravity (9.8 m/s^2). (Round your answers to the nearest whole number.)

(a) If a gun is fired with $\alpha = 30°$ and $v_0 = 600$ m/s. When will the bullet hit the ground?

(No Response) s

How far from the gun will it hit the ground?
(No Response) m

What is the maximum height reached by the bullet?
(No Response) m

(b) Find the equation of the parabolic path by eliminating the parameter.
(No Response)

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