

Calculus BC 9.2-9.3 CW on Parametric Equations

Given: $x = 3 - 2t$, $y = 2 + 3t$

1. a) Write the corresponding rectangular equation by eliminating the parameter
- b) Sketch the curve represented

Given: $x = t^2 + t$, $y = t^2 - t$

2. a) Write the corresponding rectangular equation by eliminating the parameter
- b) Sketch the curve represented

Given: $x = t^2 + 3t + 2$, $y = 2t$ $t = 1$

3. a) Find $\frac{dy}{dx}$
- b) Find $\frac{d^2y}{dx^2}$
- c) Find the slope and the concavity (if possible) at the indicated value of the parameter.
- d) Find the equation of the tangent line at the indicated value of the parameter.

Given: $x = \cos \theta$, $y = 3 \sin \theta$ $\theta = 0$

4. a) Find $\frac{dy}{dx}$
- b) Find $\frac{d^2y}{dx^2}$
- c) Find the slope and the concavity (if possible) at the indicated value of the parameter.
- d) Find the equation of the tangent line at the indicated value of the parameter.

Given: $x = t^2 - t + 2$, $y = t^3 - 3t$

5. Find all points (if any) of horizontal and vertical tangency to the curve.

Given: $x = t^2 + 1$, $y = 4t^3 + 3$ $[-1, 0]$

6. Find the arc length of the curve over the given interval.

Given: $x = t$, $y = 4 - 2t$ $[0, 2]$

7. a) Find the area of the surface generated by revolving the curve about the x -axis.
- b) Find the area of the surface generated by revolving the curve about the y -axis.