

9.1 Parametric Equations

Calculus

Name: _____

CA #2

- For $x = \ln t$ and $y = 2t^2$, eliminate the parameter and write the corresponding rectangular equation.
- If $x = 4 \sin 2t$ and $y = 6 \cos 2t$ then $\frac{dy}{dx} =$
- A curve is described by the parametric equations $x(t) = \tan t$ and $y(t) = \sin^2 2t$. Find an equation of the line tangent to this curve at the point determined by $t = \frac{\pi}{3}$.
- A curve is defined by the parametric equations $x(t) = \frac{1}{3}t^3 - \frac{5}{2}t^2 + 6t + 1$ and $y(t) = t^2 + 10t$. For what values of t is the line tangent to this curve vertical?
- What is the slope of the tangent line to the curve defined parametrically by $x(t) = t^2 - 6$ and $y(t) = \frac{1}{t}$, $t \geq 0$ at the point $(-5, 1)$?

1. $y = 2e^{2x}$	2. $\frac{dy}{dx} = -\frac{2}{3} \tan 2t$	3. $y' = -\frac{4}{\sqrt{3}}x + \frac{2}{3}$	4. $t = 3$ and $t = 2$	5. $-\frac{1}{2}$
------------------	---	--	------------------------	-------------------

Answers to 9.1 CA #2