

Finding the Derivative of a Parametric Curve

Calculate the derivative $\frac{dy}{dx}$ for each of the following parametrically defined plane curves, and locate any critical points on their respective graphs.

a. $x(t) = t^2 - 3$, $y(t) = 2t - 1$, $-3 \leq t \leq 4$

b. $x(t) = 2t + 1$, $y(t) = t^3 - 3t + 4$, $-2 \leq t \leq 5$

c. $x(t) = 5 \cos t$, $y(t) = 5 \sin t$, $0 \leq t \leq 2\pi$

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