

1. A parametric curve is given by  $x = 3 \sin t$ ,  $y = 2 \cos t$ , where  $-\pi \leq t \leq \pi$ . 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.

2. Sketch the curve given by

$$\begin{aligned}x &= t + 1 \\y &= t^2, \quad -2 \leq t \leq 1\end{aligned}$$

3. Consider the parametric curve given by  $x = e^t + 1$ ,  $y = e^{2t}$ . Eliminate the parameter to find a Cartesian equation of the curve.

4. Find a Cartesian equation for the curve given by the parametric equations  $\begin{cases} x = 2t - 1 \\ y = \ln(t) \end{cases}$

5. Find a Cartesian equation for the curve given by the parametric equations  $\begin{cases} x = \sin t \\ y = \cos^2 t \end{cases}$

6. Find a Cartesian equation for the curve given by the parametric equations  $\begin{cases} x = 2 \sec t \\ y = 3 \tan t \end{cases}$

7. Find a parametrization for the hyperbola  $x^2 - \frac{y^2}{4} = 1$

8. Find a parametrization for the curve  $y^3 + x^2 = 64$

9. Find 2 parametrizations for the curve  $y = x^2 + 4x + 4$