

Name : _____

1. Consider the parametric equations $\begin{cases} x = t^2 + 2 \\ y = 4t \end{cases}$ where $-4 \leq t \leq 4$.
 - a. Sketch the curve by plotting 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.

2. Find parametric equations for the line segment with initial point $(1,1)$ and terminal point $(3,5)$.

Learning Activity

3. Consider the parametric equations $\begin{cases} x = \frac{1}{2} \cos \theta \\ y = \sin \theta \end{cases}$ where $0 \leq \theta \leq \pi$.
- Eliminate the parameter to find a Cartesian equation of the curve.
 - Sketch the curve and indicate with an arrow the direction in which the curve is traced as t increases.

4. Find parametric equations for the circle centered at $(-2, -3)$ with radius 8, generated clockwise. Answer can be verified with Desmos, for example: <https://www.desmos.com/calculator/aur1fhegdz>