

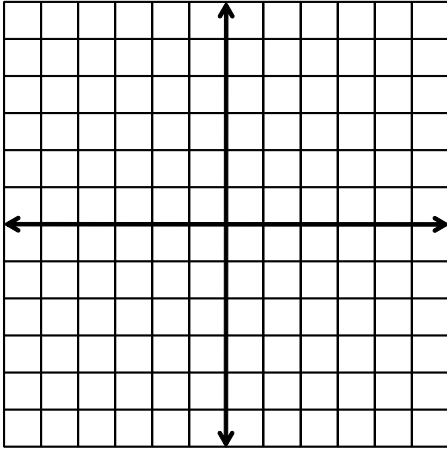
Precalculus

7-06 Parametric Equations

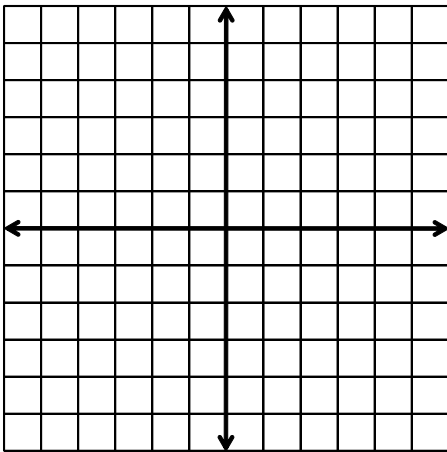
Parametric Equations

- Separate _____ for x and y
- x and y are functions of a _____ variable called a _____

Graph $\begin{cases} x = t - 3 \\ y = t^2 + 1 \end{cases}$



Graph $\begin{cases} x = 2 \cos \theta \\ y = 2 \sin \theta \end{cases}$ for $0 \leq \theta \leq 2\pi$



Eliminating the Parameter

1. Solve one equation for _____
2. _____ it into the other equation

Eliminate the parameter of $\begin{cases} x = \frac{1}{\sqrt{t}} \\ y = 2t^2 \end{cases}$

Eliminate the parameter in $\begin{cases} x = 2 \cos \theta \\ y = 2 \sin \theta \end{cases}$

Finding parametric equations

1. Choose something _____ to equal _____

Find parametric equations for $y = 4x - 3$

Find parametric equations for conics.

Parabola

- Horizontal: $\begin{cases} x = pt^2 + h \\ y = 2pt + k \end{cases}$
- Vertical: $\begin{cases} x = 2pt + h \\ y = pt^2 + k \end{cases}$

Ellipse

- Horizontal: $\begin{cases} x = h + a \cos t \\ y = k + b \sin t \end{cases}$
- Vertical: $\begin{cases} x = h + b \sin t \\ y = k + a \cos t \end{cases}$

Hyperbola

- Horizontal: $\begin{cases} x = h + a \sec t \\ y = k + b \tan t \end{cases}$
- Vertical: $\begin{cases} x = h + b \tan t \\ y = k + a \sec t \end{cases}$