

**Plotting Parametric Curves** 

Physics 258/259 - DS Hamilton 2005

This worksheet demonstrates how to plot a parametric curve  $\{x(t), y(t)\}$ .

The example we will use is that of Lissajous figures, that were discussed in conjunction with the velocity of sound lab. Simply input your  $\omega$ -parameters and the phase angle  $\phi$ .

$$\omega_{\mathbf{x}} \coloneqq 1$$
  $\omega_{\mathbf{y}} \coloneqq 1$   $\phi \coloneqq \frac{\pi}{2}$ 

 $\mathbf{x}(t) \coloneqq \sin\left(\omega_{\mathbf{x}} \cdot t\right)$   $\mathbf{y}(t) \coloneqq \sin\left(\omega_{\mathbf{y}} \cdot t + \phi\right)$ 

Here are the two functions



Change the parameters to see how they effect the curve.

It is easy to see how to modify this for other parametric functions.