Component Graphs on Maple

Producing component graphs on Maple is a bit complicated. First, produce the direction field for the system.

> **with(DEtools):with(plots):**

> **de1 := diff(x(t),t) = 3 * x(t) − 1.6 * x(t) * y(t);**

> **de2 := diff(y(t),t) = −.8 * y(t) + .7 * x(t) * y(t);**

> **DEplot([de1,de2] , [x(t),y(t)] , t=0..4, [[x(0)=2,y(0)=1]]**
>   **, x=0..4 , y=0..4, stepsize=.05 , color = black ,**
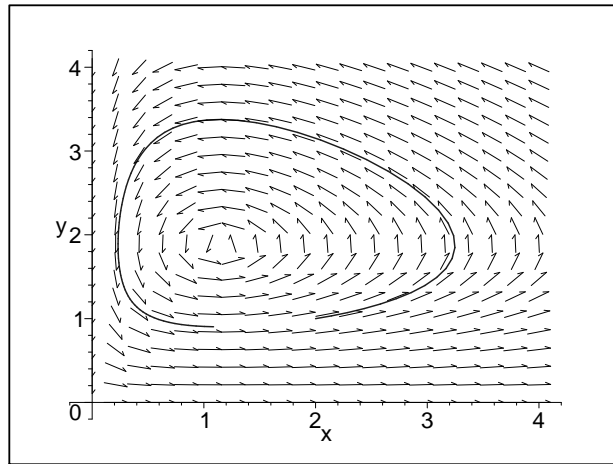>   **linecolor = blue);**

Figure 1: direction field

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> # Now define a numeric procedure called F

> F := dsolve({ de1 , de2 , x(0)=2,y(0)=1} , [x(t),y(t)]
          , type=numeric);

With this numeric procedure we can use **odeplot** to get the component graphs.
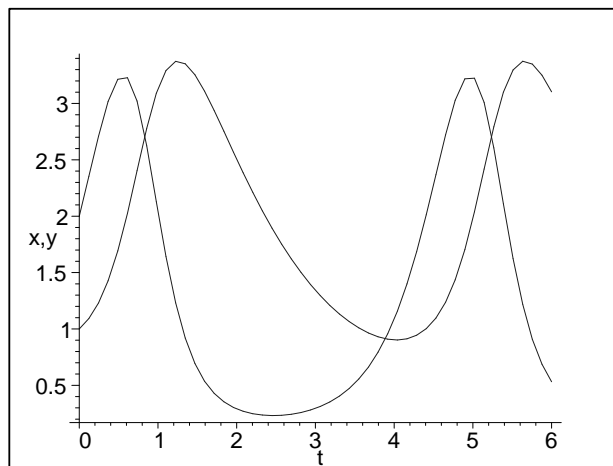
> odeplot(F, [[t,x(t)],[t,y(t)]] , 0..6,
          labels=[t , "x,y"]);

Figure 2: component graphs

Done in TEX.