In[1]:=
```
a = 0.5
```
Out[1]=
```
0.5
```

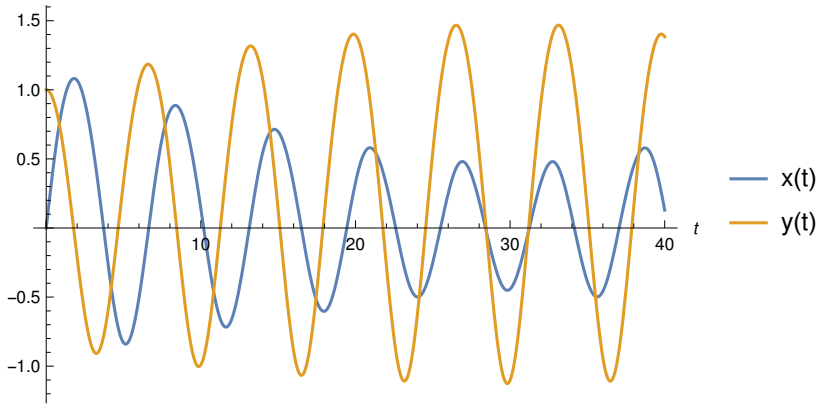
In[2]:=
```
{"e1", Slider[Dynamic[e1], {-0.1, 0.1, 0.01}], Dynamic[e1]}
{"e2", Slider[Dynamic[e2], {-0.1, 0.1, 0.01}], Dynamic[e2]}
{"e3", Slider[Dynamic[e3], {-0.1, 0.1, 0.01}], Dynamic[e3]}
```
Out[2]= {e1, , -0.1}

Out[3]= {e2, , -0.1}

Out[4]= {e3, , 0.1}

In[60]:=
```
sol = Quiet@NDSolve[
   {x''[t] == -(2 * a * x[t] + 3 * e1 * (x[t])^2 + 3 * e3 * (x[t])^2 * (y[t])^3), x[0] == 0,
    x'[0] == 1, y''[t] == -(2 * a * y[t] + 3 * e2 * (y[t])^2 + 3 * e3 * (x[t])^3 * (y[t])^2),
    y[0] == 1, y'[0] == 0}, {x[t], y[t]}, {t, 0, 200}]
```
Out[60]=
```
{{x[t] → InterpolatingFunction[ ⊞ Domain: {{0., 200.}} Output: scalar ][t],
  y[t] → InterpolatingFunction[ ⊞ Domain: {{0., 200.}} Output: scalar ][t]}}
```

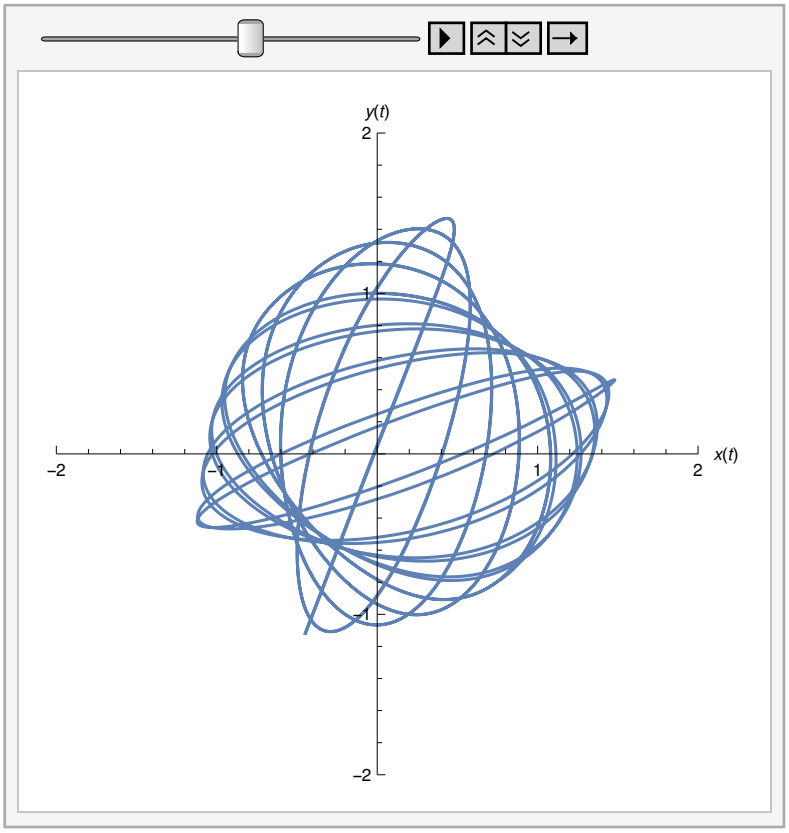
In[61]:=
```
output1 = Plot[{x[t] /. sol, y[t] /. sol},
  {t, 0, 40}, PlotLegends → {"x(t)", "y(t)"}, AxesLabel → Automatic]
```
Out[61]=



In[62]:=
```
dat = Table[ParametricPlot[Evaluate[{x[t], y[t]} /. sol,
      {t, 0, tt}, PlotRange → 2, AxesLabel → {x[t], y[t]}]], {tt, .1, 200, .2}];
```

In[63]:=
```
ListAnimate[dat]
```

Out[63]=



In[64]:=
```
SetDirectory@NotebookDirectory[]
Export["visual_case9.gif", dat]
```

Out[64]= /home/jack/Documents/Wolfram Mathematica

Out[65]= visual_case9.gif

In[66]:=
```
Export["solution_case9.svg", output1]
```

Out[66]= solution_case9.svg