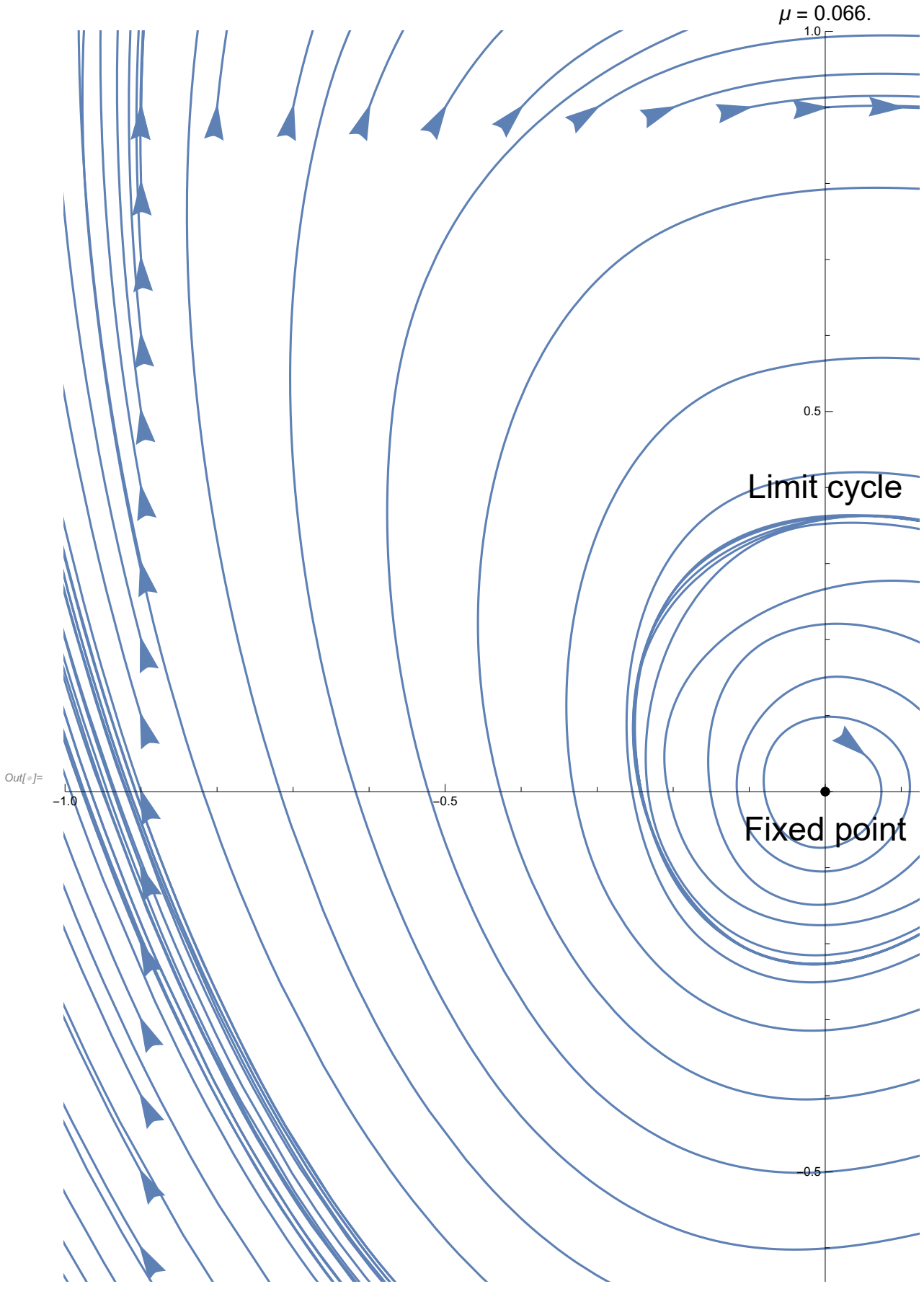
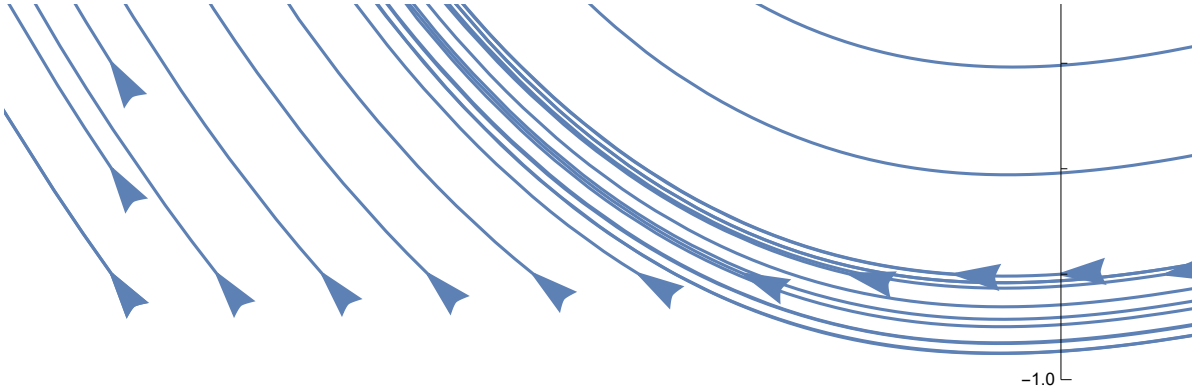
In[1723]:=

```
minxplot = -1;
maxxplot = 1;
minyplot = -1;
maxyplot = 1;

tMax = 50;
μ = 0.066;
title = StringForm["μ = `1`.", μ];

sol[u_, v_] :=
 NDSolve[{x'[t] == μ * x[t] + y[t] - x[t]^2, y'[t] == -x[t] + μ * y[t] + 2 * x[t]^2,
   x[0] == u, y[0] == v}, {x, y}, {t, tMax}, Method → "StiffnessSwitching"]

p1 = ParametricPlot[Evaluate[{x[t], y[t]} /. sol[0.05, 0.05]],
    {t, 0, tMax}, PlotRange → {{minxplot, maxxplot}, {minyplot, maxyplot}},
    PlotLabel → Style[title, FontSize → 15]] /.
   Line[x_] :→ {Arrowheads[{0.02, 0.}], Arrow[x]};

p2 = ParametricPlot[Evaluate[{x[t], y[t]} /. sol[0.1, 0]],
    {t, 0, tMax}, PlotRange → {{minxplot, maxxplot}, {minyplot, maxyplot}},
    PlotLabel → Style[title, FontSize → 15]] /.
   Line[x_] :→ {Arrowheads[{0.02, 0.}], Arrow[x]};
p3 = ParametricPlot[Evaluate[{x[t], y[t]} /. sol[0.01, 0.01]],
    {t, 0, tMax}, PlotRange → {{minxplot, maxxplot}, {minyplot, maxyplot}},
    PlotLabel → Style[title, FontSize → 15]] /.
   Line[x_] :→ {Arrowheads[{0.02, 0.}], Arrow[x]};

miny = -0.9;
maxy = 0.9;
minx = -0.9;
maxx = 0.9;
step = 0.1;

Table11 = Table[{minx, y}, {y, miny, maxy, step}];
Table12 = Table[{x, maxy}, {x, minx, maxx, step}];
Table13 = Table[{maxx, y}, {y, miny, maxy, step}];
Table14 = Table[{x, miny}, {x, minx, maxx, step}];

TableFinal = Join[Table11, Table12, Table13, Table14];
xStar = (μ^2 + 1) / (μ + 2);
yStar = xStar^2 - μ * xStar;


Show[p1,
 Table[ParametricPlot[
    Evaluate[{x[t], y[t]} /. sol[TableFinal[[i, 1]], TableFinal[[i, 2]]]],
    {t, 0, tMax}, PlotRange → {{minxplot, maxxplot}, {minyplot, maxyplot}},
    PlotLabel → Style[title, FontSize → 15]] /.
   Line[x_] :→ {Arrowheads[{0.02, 0.}], Arrow[x]}, {i, Length[TableFinal]}],
 Graphics[{PointSize[Large], Point[{0, 0}]}],
 Graphics[Text[Style["Fixed point", Large], {0, -0.05}]],
 Graphics[{PointSize[Large], Point[{xStar, yStar}]}],
 Graphics[Text[Style["Fixed point", Large], {xStar, yStar - 0.05}]],
 Graphics[Text[Style["Limit cycle", Large], {0, 0.4}]]
```

]



Out[ ]=



In[•]:=
```
xStar = (μ^2 + 1) / (μ + 2)
yStar = xStar^2 - μ * xStar
```

Out[•]=
$$\frac{1}{2}$$

In[•]:=
```
yStar
```

Out[•]= 6