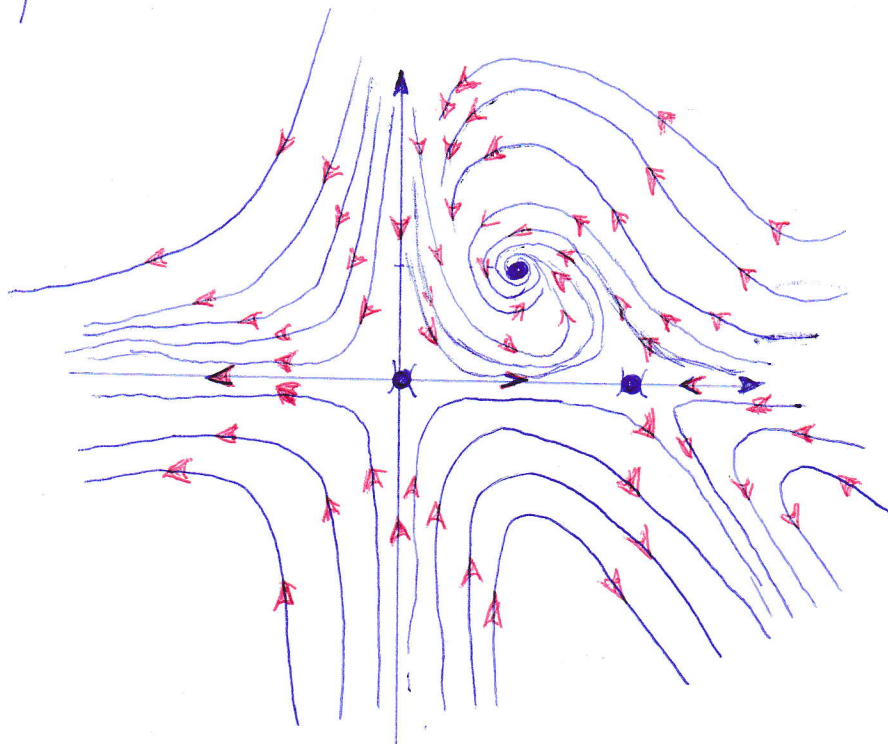


I.1.
$$\begin{cases} \dot{x} = 2x - x^2 - xy \\ \dot{y} = -y + xy \end{cases}$$

has 3 equilibria: $(0,0)$, $(2,0)$, $(1,1)$.

After using Maple in Lab 5, it seems that its phase portrait looks like:



$\frac{dy}{dx} = 0 \Rightarrow \begin{cases} \dot{x} = 2x - x^2 \\ 0 = 0 \end{cases} \rightarrow \dot{x} = x(2-x)$

| | | | | |
|----------|-----------|-----|-----|-----------|
| x | $-\infty$ | 0 | 2 | $+\infty$ |
| $2x-x^2$ | $-$ | 0 | $+$ | $-$ |

$x=0 \Rightarrow \begin{cases} 0=0 \\ \dot{y} = -y \end{cases}$

| | | | |
|------|-----------|-----|-----------|
| y | $-\infty$ | 0 | $+\infty$ |
| $-y$ | $+$ | 0 | $-$ |