# Spojité dynamické systémy

In[60]:= **Chemostat**

Out[60]=

**Chemostat**

$$N'(t)=\alpha_1 \frac{C(t)}{1+C(t)}N(t)-N(t)$$

$$C'(t)=\alpha_2-C(t)-\frac{C(t)}{1+C(t)}N(t)$$

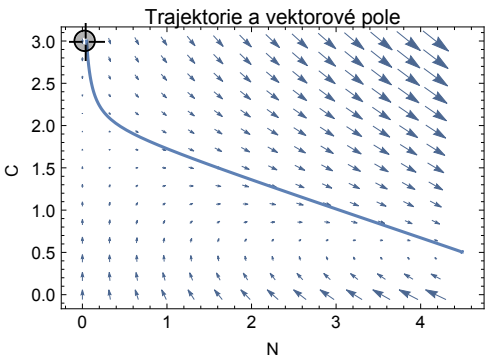
$\alpha_1$

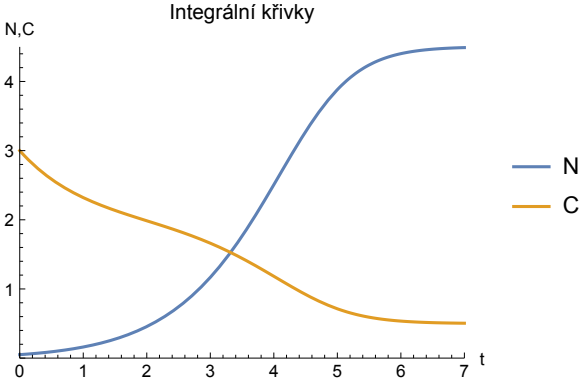
$\alpha_2$

t1

Nmax

Cmax



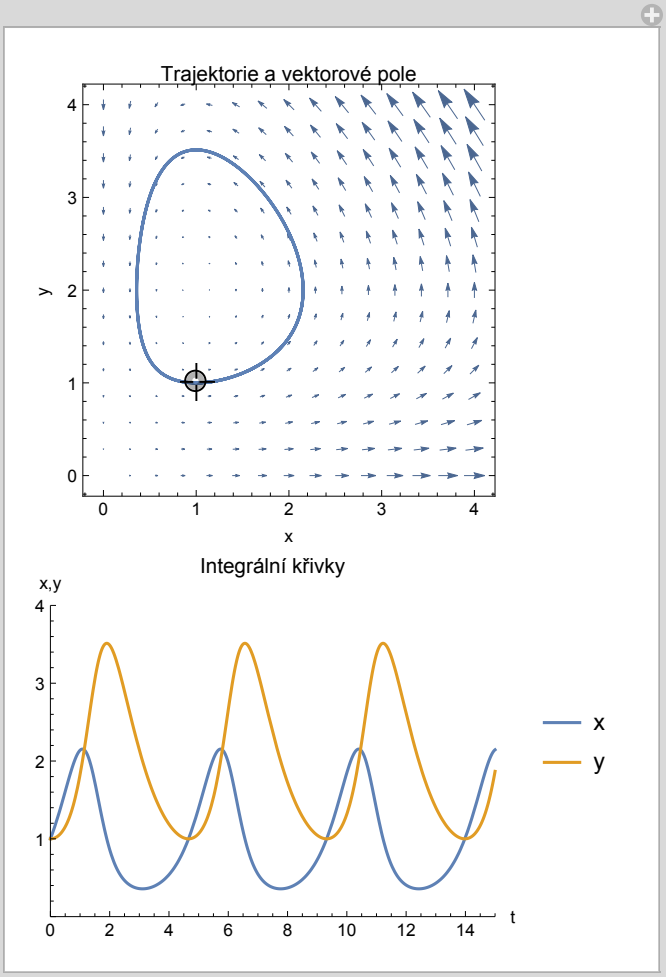
In[61]:= **BZ**

Out[61]=

## Bělousov–Žabotínského reakce

$$x'(t)=a\,k_1\,x(t)-k_2 x(t)y(t)$$
$$y'(t)==k_2\,x(t)y(t)-k_3 y(t)$$

$k_1$
$k_2$
$k_3$
a
t1
xmax
ymax



In[62]:= **Sch**

Out[62]=

**Schnakenbergův systém**

$x'(t)=x^2(t)y(t)-x(t)$

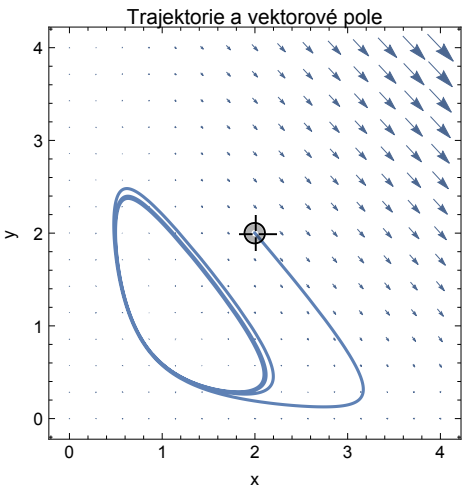
$y'(t)==a-x^2(t)y(t)$

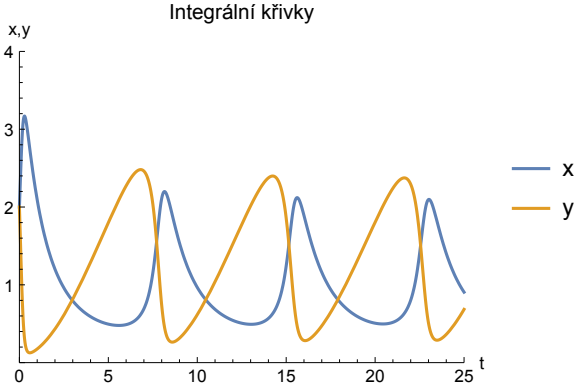
a

t1

xmax

ymax



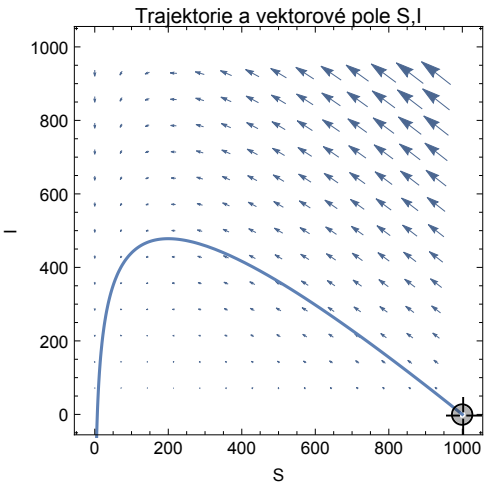
In[63]:= **SIR**

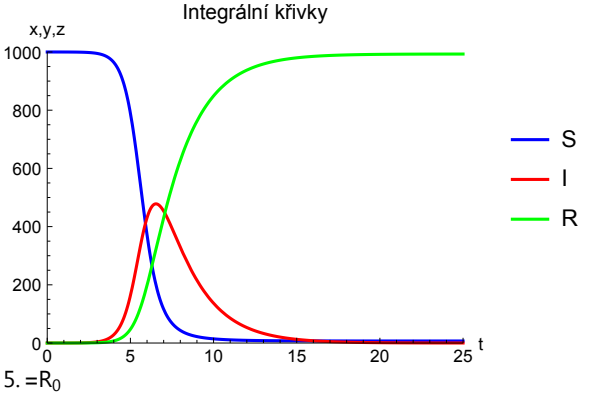
Out[63]=

## SIR model

$$S'(t) = -\beta\, S(t)\, I(t)$$
$$I'(t) = \beta\, S(t)\, I(t) - v\, I(t)$$
$$R'(t) = v\, I(t)$$

N
β
v
t1
Smax
Imax




5. $=R_0$

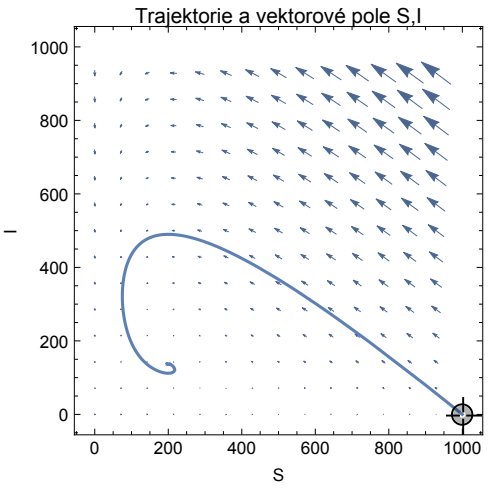
In[64]:= **SIRS**

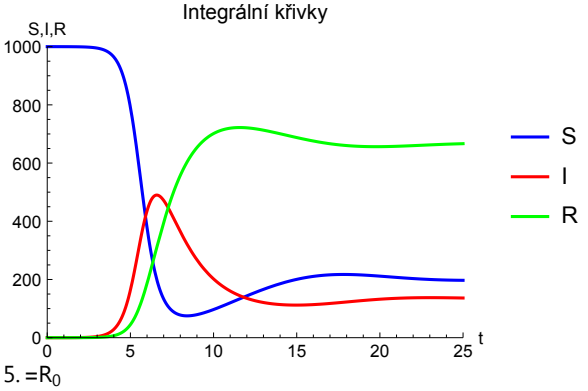
Out[64]=

## SIRS model

$$S'(t) = -\beta\, S(t)\, I(t) + \gamma\, R(t)$$
$$I'(t) = =\beta\, S(t)\, I(t) - \nu\, I(t)$$
$$R'(t) = \nu\, I(t) - \gamma\, R(t)$$

N
β
ν
γ
t1
Smax
Imax




5. $=R_0$