Test file for mfpic4ode package

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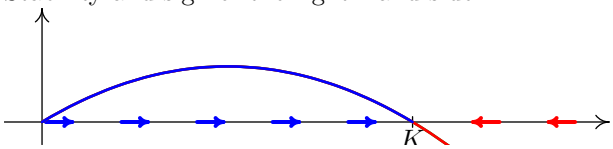
See the source file `demo-plain.tex` for comments in the TEX code.

Logistic equation

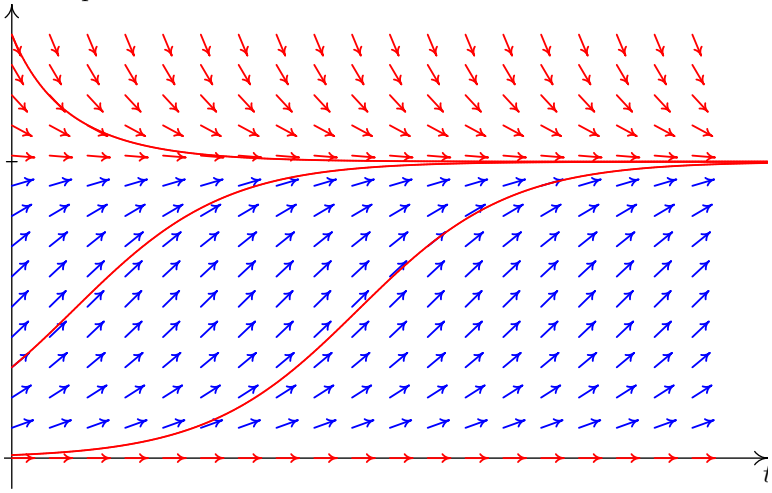
Here we draw a simple picture which describes stability of stationary points of teh equation and then draw phase portrait of the equation.

$$x' = r \cdot \left(1 - \frac{x}{K}\right) x$$

Stability and sign of the right–hand side.



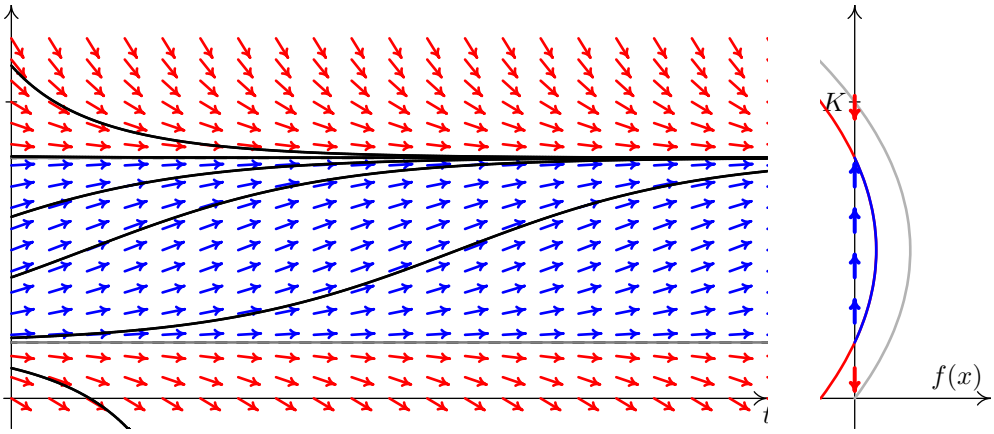
Phase portrait



Logistic equation with harvesting

Similar to the previous picture, but both pictures are drawn together to see the relations between them.

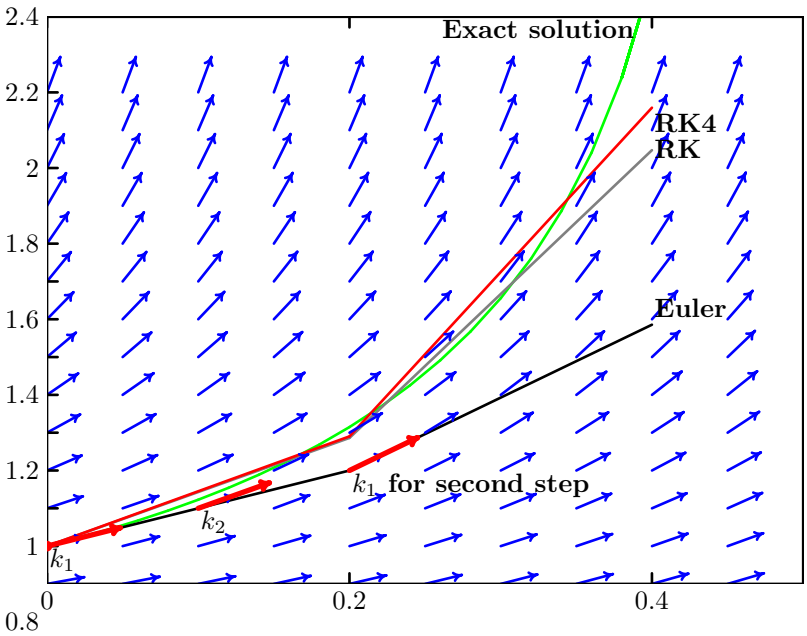
$$x' = r \cdot \left(1 - \frac{x}{K}\right) x - p$$



Three numerical methods for ODEs

Here we draw solution of ODE using all three available numerical methods. We use big step to see the difference between Euler, Runge–Kutta and fourth order Runge–Kutta method.

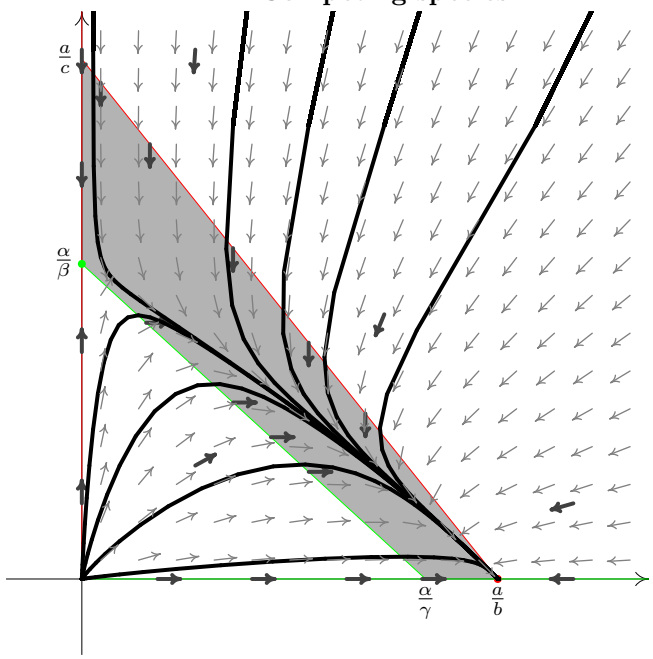
$$y' = x + y^3 \qquad y(0) = 1$$



Autonomous systems

We draw the phase portrait of autonomous system, nulclines, invariant set between nulclines, trajectories. We draw arrows in regular grid and add few more arrows on nulclines and outside the regular grid.

Competing species



Predator prey system with HollingII response function