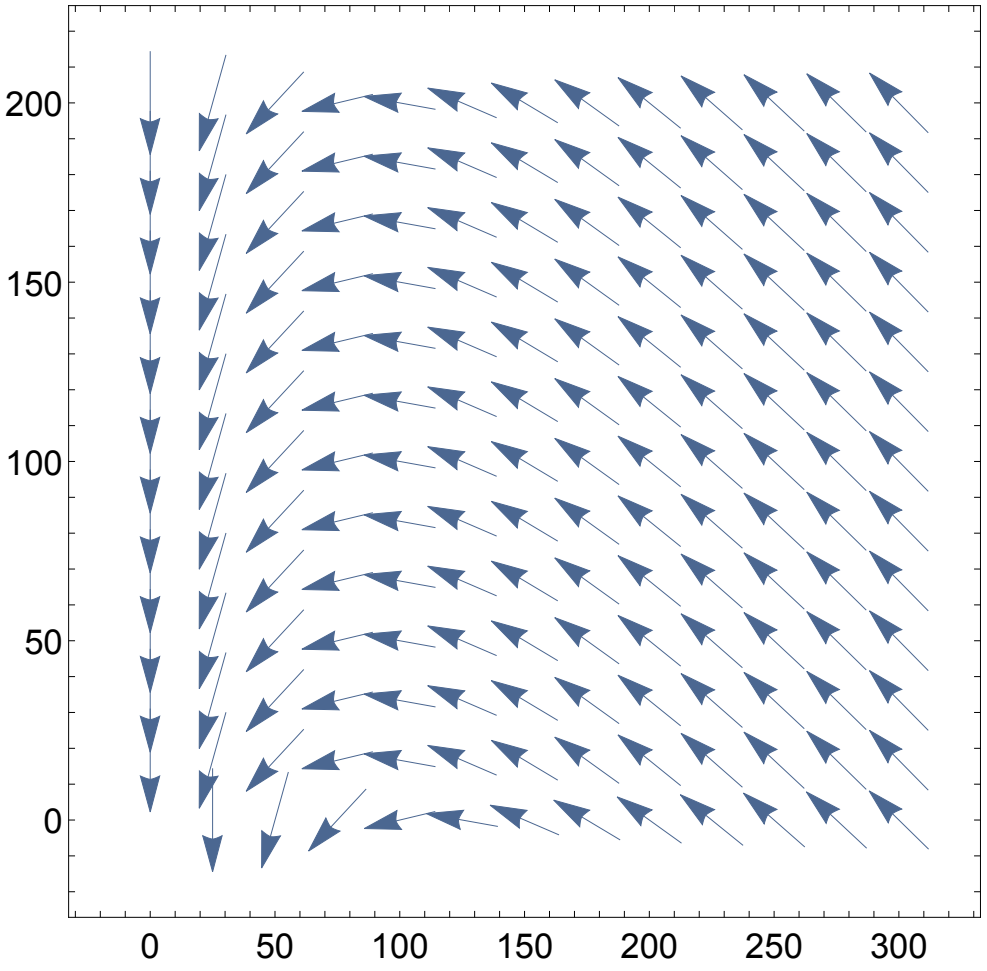
Simulation einer Epidemie

Buch:Höhere Mathematik sehen und verstehen, Haftendorn, Riebesehl, Dammer, Springer Spektrum, Feb. 2021

Datei Corona.nb zu Abschnitt 4.6.6 Seite 340, Abb. 4.25

```
U = 997; V = 3; β = 0.0004; γ = 0.035;

VectorPlot[{-β u v, β u v - γ v}/Norm[{-β u v, β u v - γ v}], {u, 0, 300}, {v, 0, 200}, VectorPoints → 13,
 VectorScale -> {Medium, 0.9, Automatic}, BaseStyle → FontSize → 18]
```

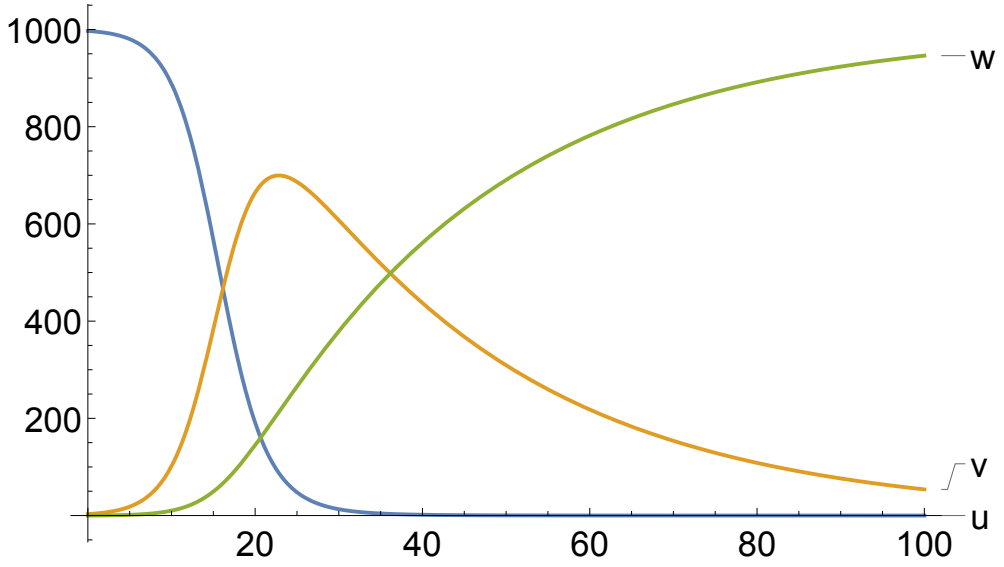



```
StreamPlot[{-β u v, β u v - γ v}/Norm[{-β u v, β u v - γ v}], {u, 0, 1000}, {v, 0, 700}]

T = 100;

sol = NDSolve[{u'[t] == -β u[t] × v[t], v'[t] == β u[t] × v[t] - γ v[t],
    w'[t] == γ v[t], u[0] == U, v[0] == V, w[0] == 0}, {u[t], v[t], w[t]}, {t, 0, T}];
```

```
Plot[{u[t], v[t], w[t]} /. sol // Flatten // Evaluate, {t, 0, T},
 BaseStyle → FontSize → 18, PlotStyle → Thick, PlotLabels → {"u", "v", "w"}]
```




```
ParametricPlot[{u[t], v[t]} /. sol // Flatten // Evaluate, {t, 0, T}]
```