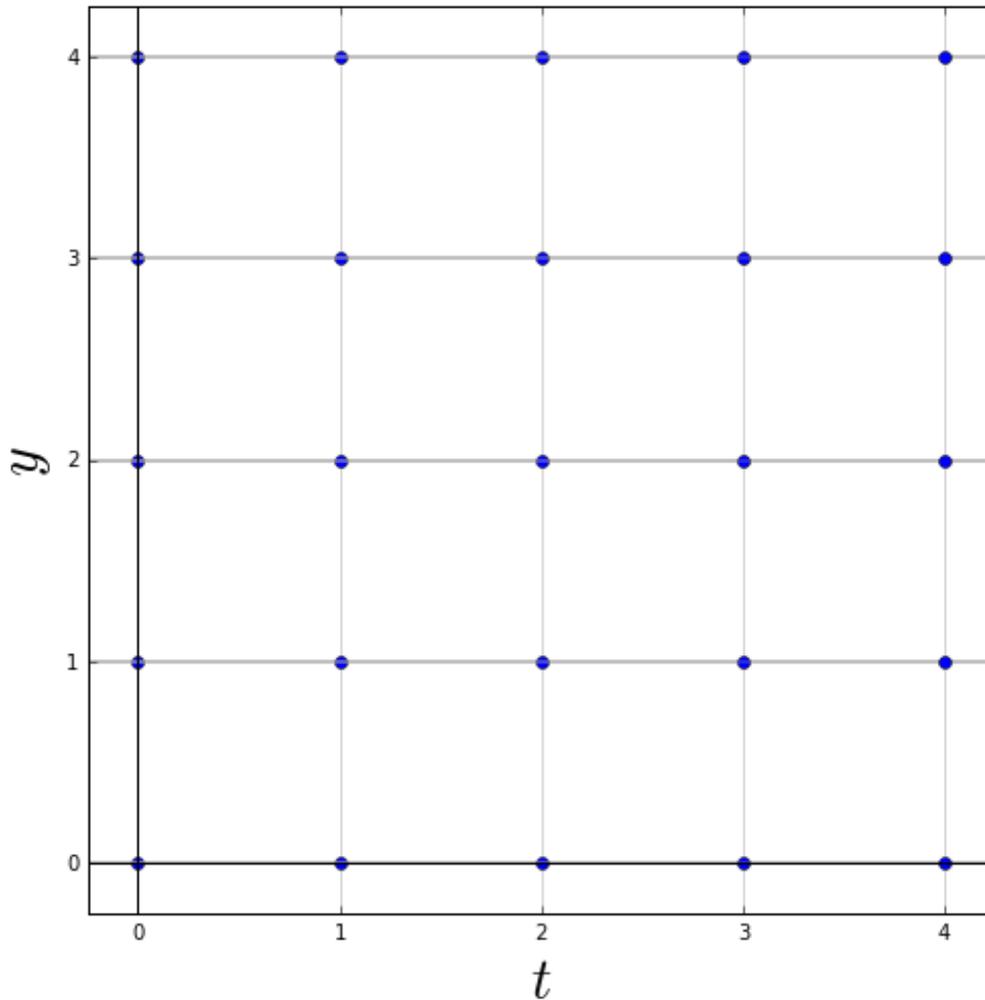


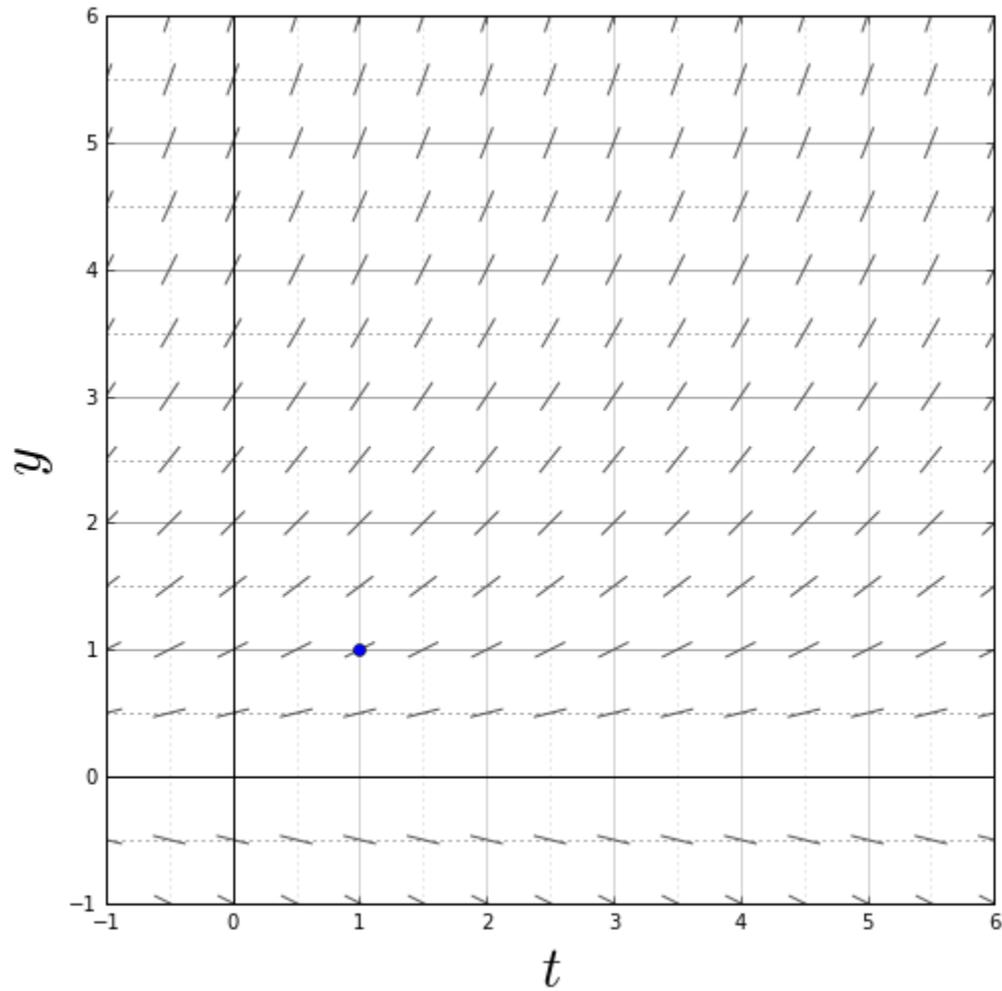
Slope fields and solution curves

Consider the following differential equation:

$$\frac{dy}{dt} = 2 - y$$

Draw short line segments that is actually as steep as the slopes in the distinguished grid points and then sketch solution curves.



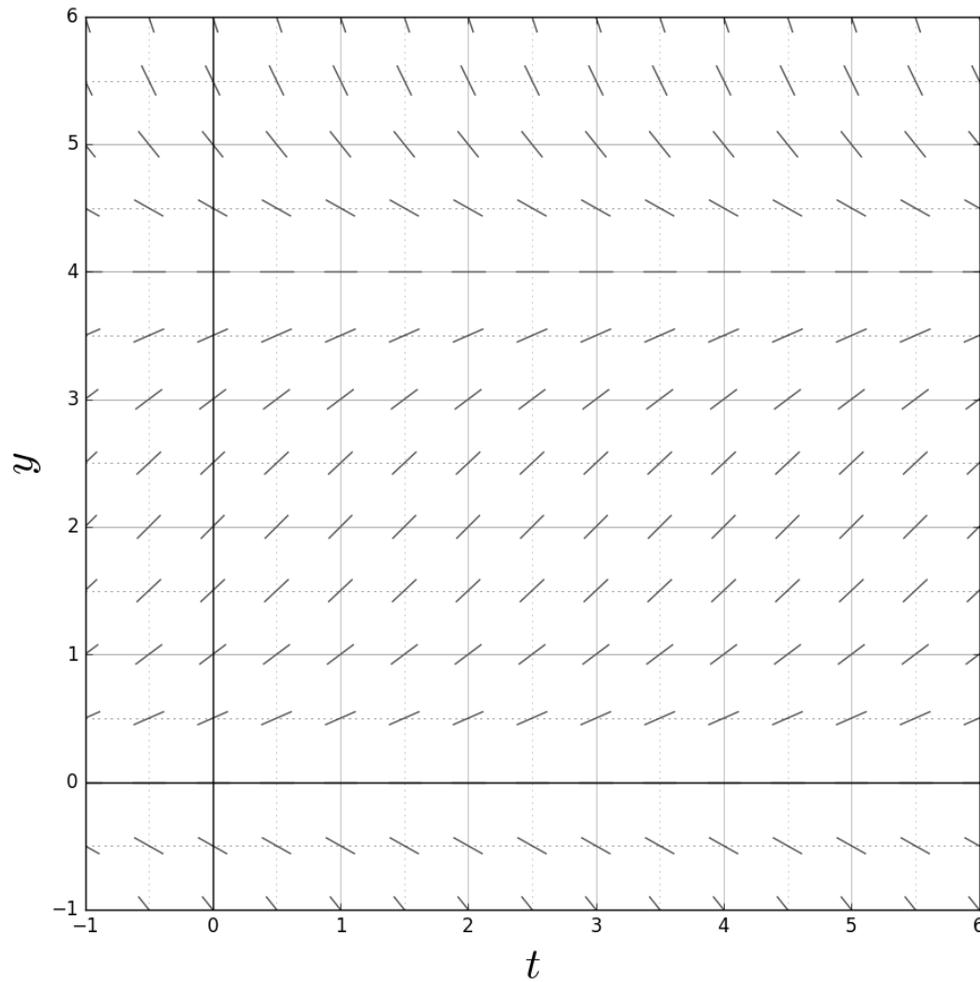


The above slope field corresponds with the following differential equation:

$$y' = \frac{y}{2}$$

Sketch the solution curve for the following initial value problem:

$$y(1) = 1$$



The above slope field corresponds with the following differential equation:

$$y' = y\left(1 - \frac{y}{4}\right)$$

Sketch the solution curve for the following initial value problem:

$$y(0) = \frac{1}{2}$$

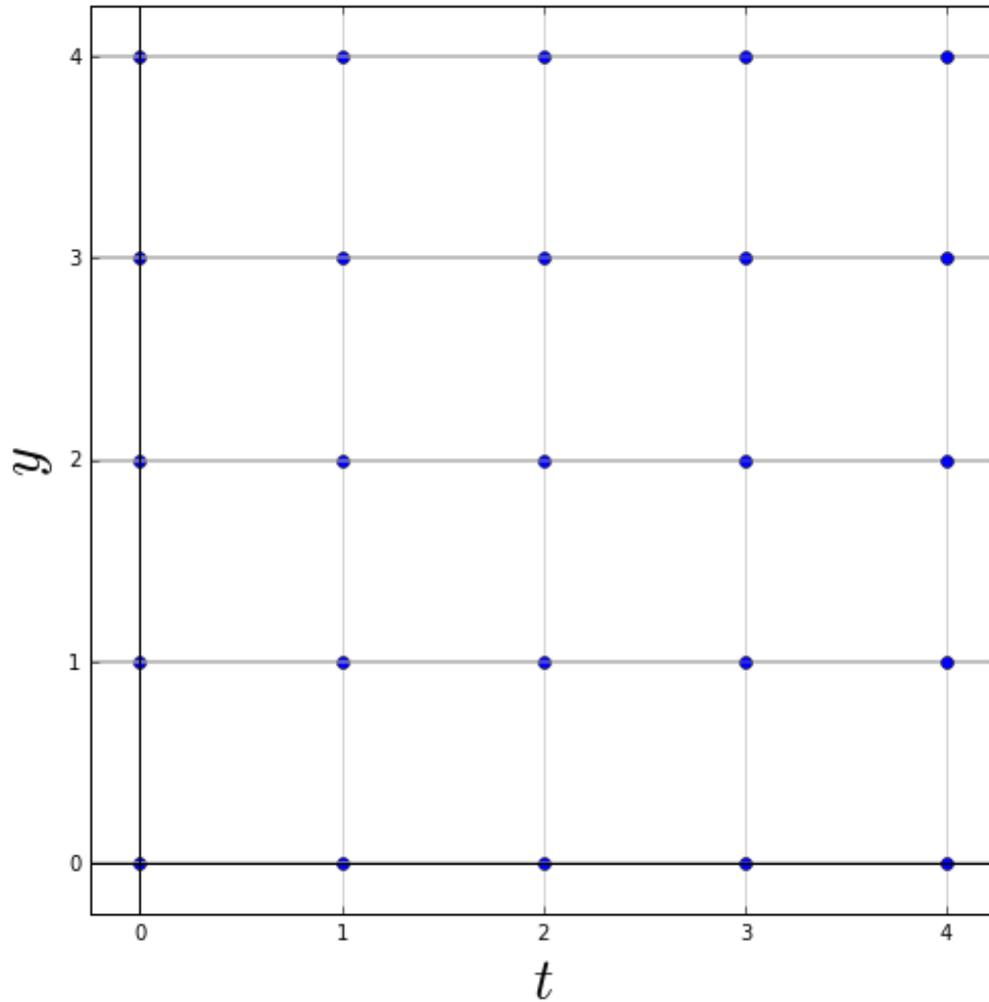
Sketch more solution curves (for several initial values of boundary values).

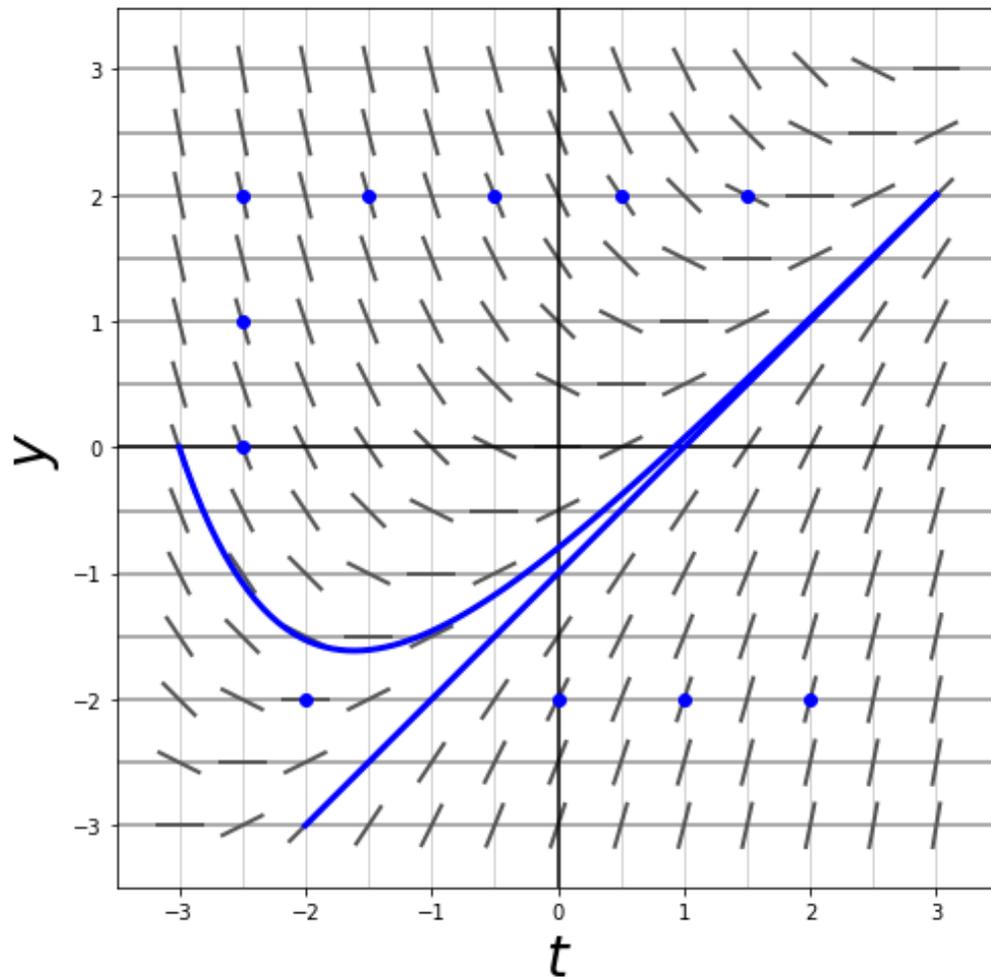
What can be said about the behaviour of solutions?

Consider the following differential equation:

$$\frac{dy}{dt} = t - y$$

Draw short line segments that is actually as steep as the slopes in the distinguished grid points.





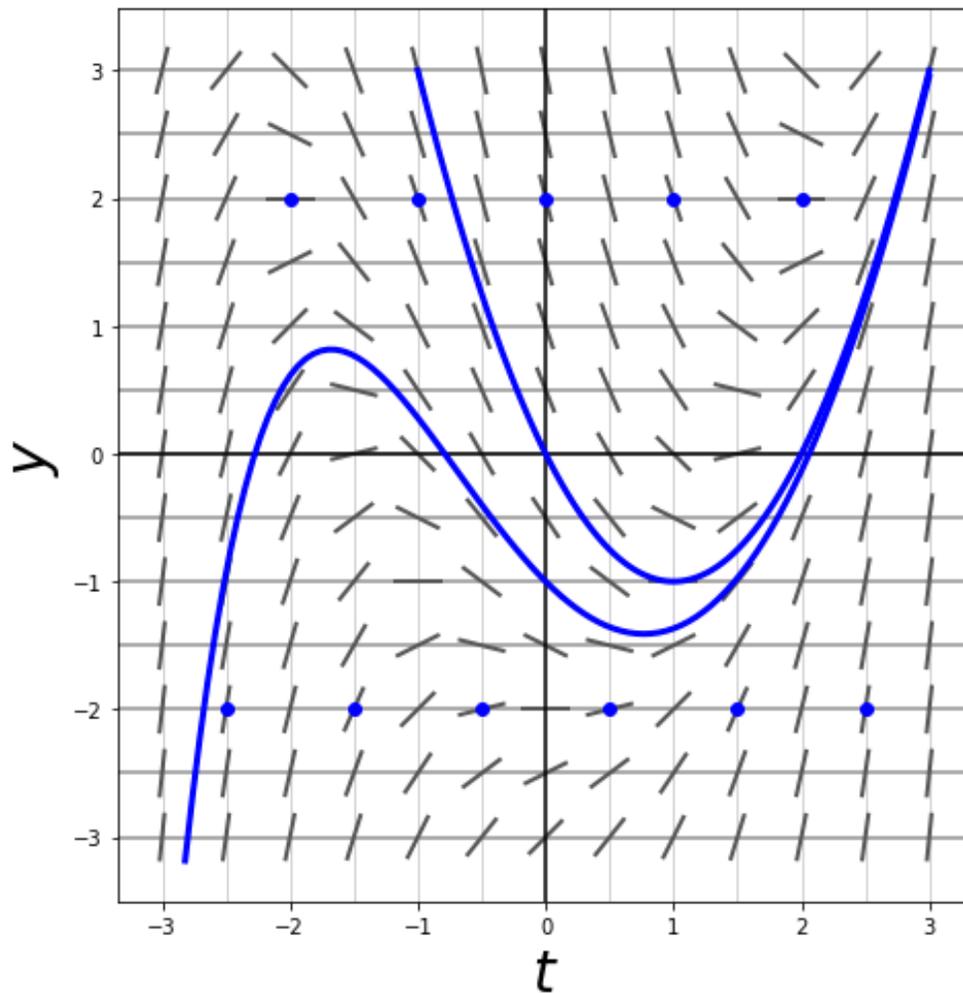
The above slope field corresponds with the following differential equation:

$$y' = t - y$$

It contains two solution curves.

Sketch solution curves that go through the distinguished grid points.

What can be said about the behaviour of solutions?



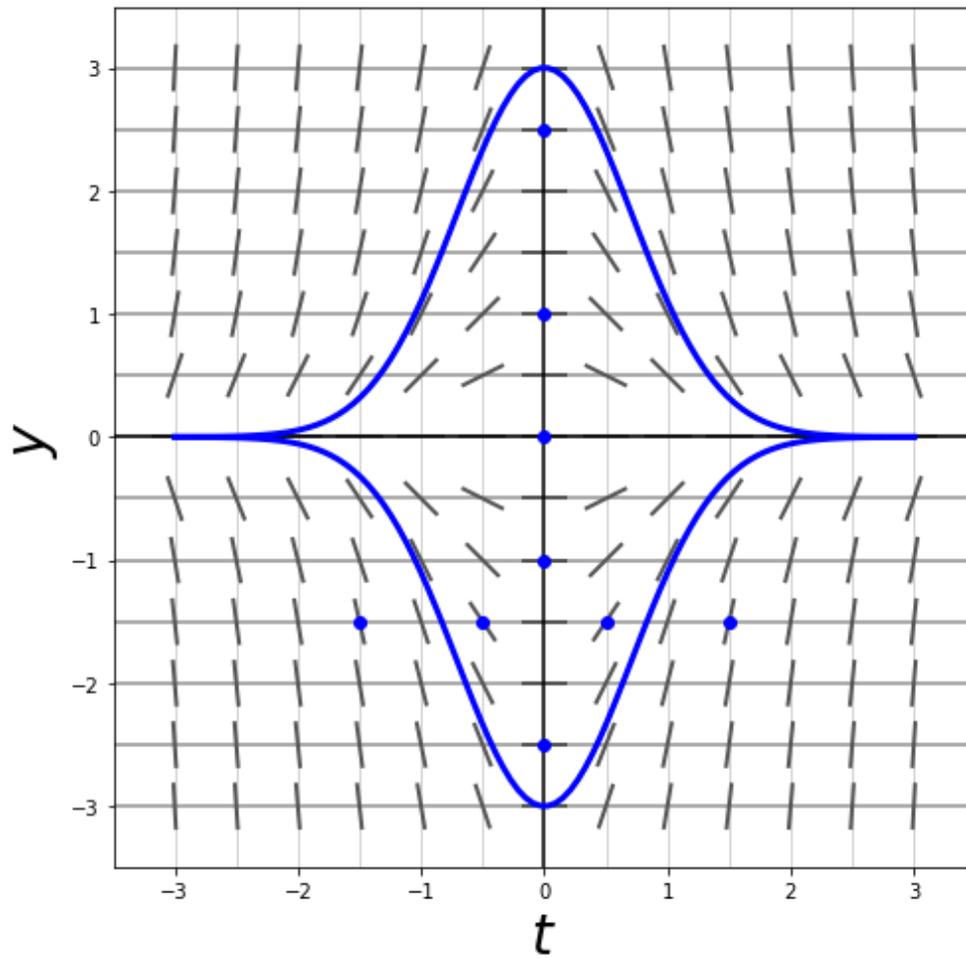
The above slope field corresponds with the following differential equation:

$$y' = t^2 - y - 2$$

It contains two solution curves.

Sketch solution curves that go through the distinguished grid points.

What can be said about the behaviour of solutions?



The above slope field corresponds with the following differential equation:

$$y' = -2t \cdot y$$

It contains two solution curves.

Sketch solution curves that go through the distinguished grid points.

What can be said about the behaviour of solutions?