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[1]: # Codes for integrating and plotting ODEs using python
#
# Paul J. Atzberger, http://atzberger.org/
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from scipy.integrate import odeint
import matplotlib; import matplotlib.pyplot as plt; import numpy as np;
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[2]: # Adjust plotting parameters
fontsize = 14;
font = {'family' : 'DejaVu Sans',
        'weight' : 'normal',
        'size'   : fontsize};

matplotlib.rc('font', **font);
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[3]: # Setup the function  $f(y,t)$  for RHS  $dy/dt = f(y,t)$ .
def f1(y, t, a):
    f = -a*y;
    return f;
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[4]: # Setup for the initial value problem
a = 2.0;
y0 = 3.0;
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[5]: # Construct numerical approximation to the solution of the ODE
t = np.linspace(0, 10, 101);
sol = odeint(f1, y0, t, args=(a,));
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[6]: # Plot the solution
plt.figure(1,figsize=(8,6),facecolor='white');
plt.plot(t,sol[:,0], 'b',label=r'$y(t)$');
plt.legend(loc='best');
plt.xlabel('t')
plt.ylabel(r'$y$')
plt.title(r'Solution $y(t)$');
#plt.grid();
#plt.draw();
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[7]: plt.show();
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