1. Solve

$$x'' + 4x' + 13x = \sum_{n=0}^{\infty}(-1)^n\delta\left(t - \frac{n\pi}{3}\right), \qquad x(0) = x'(0) = 0.$$

   Calculate $x(t)$ on the interval

$$\frac{k\pi}{3} < t < \frac{(k+1)\pi}{3}.$$

2. Write the second order equation

$$x'' - x' - 2x = 0, \qquad x(0) = \alpha, \quad x'(0) = \beta,$$

   as a system of two first order ODE's in vector-matrix form, **including initial conditions**. Is the origin stable or unstable? Classify the origin.