

A1. Find the general solution of the equation

$$y'' + y' + 2y = 3e^{-2t} \sin 5t.$$

A2. Find the general solution of the equation

$$y'' - y' + y = (t^2 + 2)e^{2t}.$$

A3. Find the general solution of the equation

$$y'' + 4y = \sin 2t - 3 \cos 2t.$$

Do you see resonance in your solution formula? Describe some real life situation of resonance.