

If I understood you correctly, then you have written next equation:

$$y'' + 4y' + 3y = 12$$

Solution:

Let's write the characteristic equation of ODE:

$$x^2 + 4x + 3 = 0$$

$$D = b^2 - 4ac = 16 - 4 * 3 = 4$$

$$x_1 = \frac{-b + \sqrt{D}}{2a} = \frac{-4 + 2}{2} = -1$$

$$x_2 = \frac{-b - \sqrt{D}}{2a} = \frac{-4 - 2}{2} = -3$$

The general solution of the given differential equation is

$$y = y_{particular} + C_1 * e^{-t} + C_2 * e^{-3t}$$

Now find $y_{particular}$ which have such form:

$$y_{particular} = A$$

$$y'_{particular} = 0$$

$$y''_{particular} = 0$$

Now substitute these roots into the ODE:

$$0 + 4 * 0 + 3 * A = 12$$

$$A = 4$$

Now general solution is:

$$y = 4 + C_1 * e^{-t} + C_2 * e^{-3t}$$

Answer: $y = 4 + C_1 * e^{-t} + C_2 * e^{-3t}$