

The two programs were written to solve Initial Value Problems;

$$\begin{cases} \frac{dR}{dt} = 2R - 1.2RF \\ \frac{dF}{dt} = -F + 0.9RF \\ R(0) = 2 \\ F(0) = 3 \end{cases} \quad (1)$$

and

$$\begin{cases} \frac{d^2y}{dt^2} + p(t) \frac{dy}{dt} + q(t)y = r(t) \\ y(0) = \alpha \\ y'(0) = \beta, \end{cases} \quad (2)$$

where (2) was converted to

$$\begin{cases} \frac{dy}{dt} = v \\ \frac{dv}{dt} = r(t) - p(t)v - q(t)y \\ y(0) = \alpha \\ v(0) = \beta. \end{cases} \quad (3)$$

Both programs employ the Runge-Kutta 4th order method so I have defined a function that can be implemented in both programs.