RK4

I use this ODE for my code

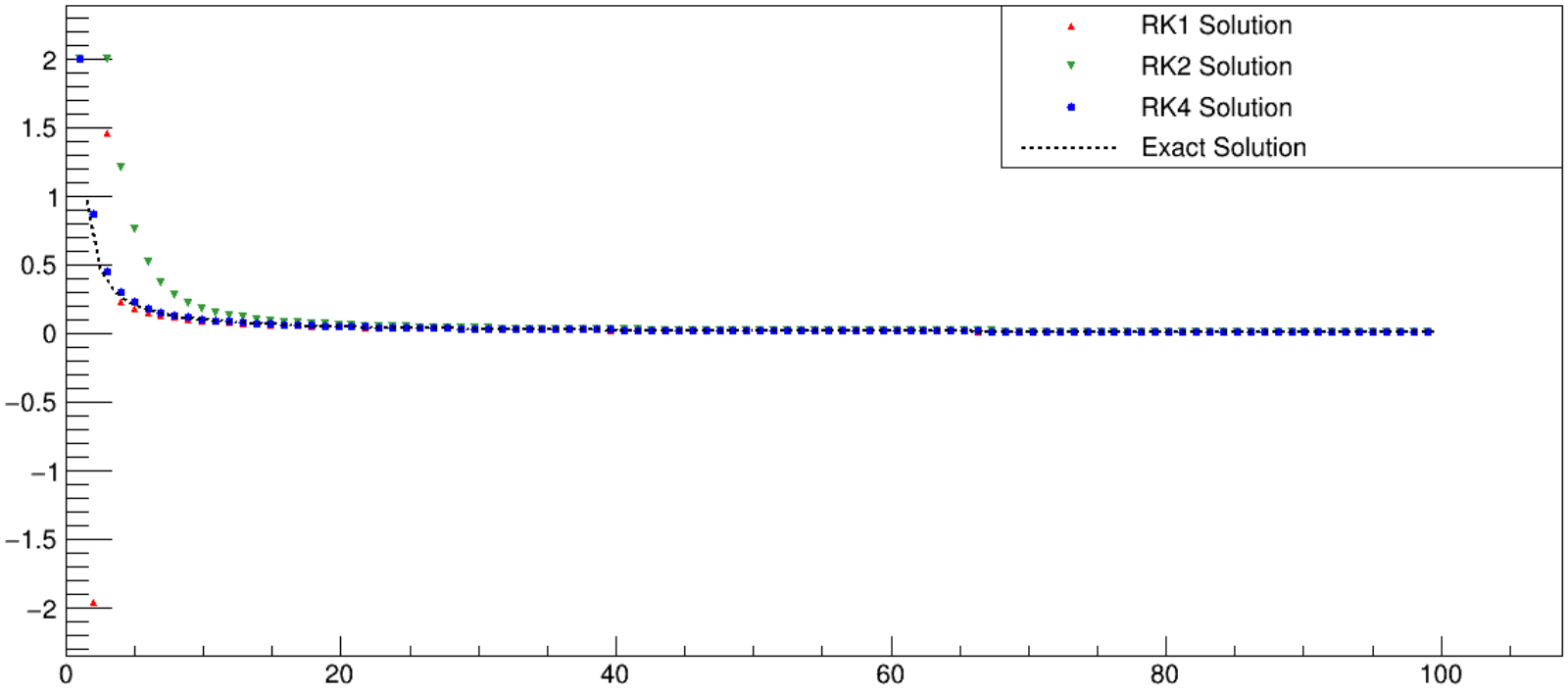
Solve the differential equation (IVP)

$$y' + \frac{3}{x}y = \frac{2}{x^2}$$

with the initial condition $y(1) = 2$.

And its exact solution.

$$y = \frac{1}{x} + \frac{1}{x^3}.$$



This graph show the RK1, RK2, RK4 and exact solution with red, green, blue and black in order. It shows the best numerical method in this graph is RK4(Blue circle) which is the most nearly an exact solution for this problem. While, the RK1(Red triangle) shows a fluctuation of numerical point as the red triangles aroud y = 1.5 and y = -2.

Lastly, the RK2(Green triangle) shows a smooth curve, but still has a big difference compared with RK4.