Language : MATLAB

Source code : ① problem_3c.m

② deriv.m

③ rk4.m

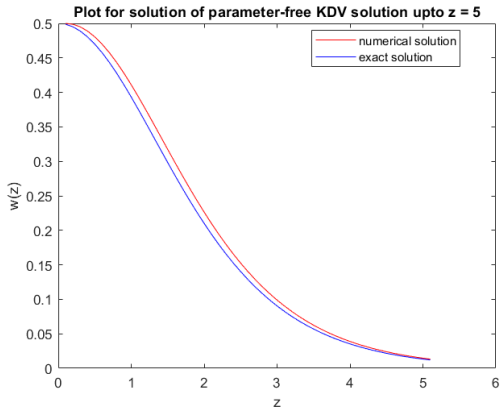

Fig : A

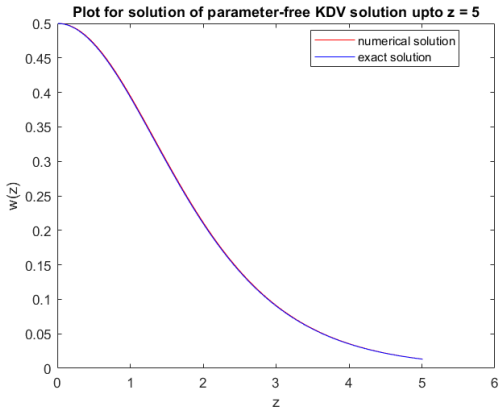

Fig : B

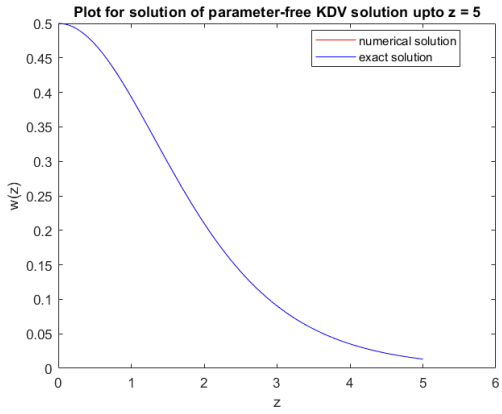

Fig : C

produced plot : ① problem_3c_dz = 0.1.png

② problem_3c_dz = 0.01.png

③ problem_3c_dz = 0.001.png

Here, in this document, 3 figures (fig:A, fig:B, and fig:C) are shown.

In fig:A, visible difference in the trajectories of numerical solution and exact solution, of the parameter-free KdV equation, is noticed. In this case $dz = 0.1$.

In fig:B, difference in trajectories of numerical solution and exact solution is hardly visible. But, the co-existance of both the curves is still noticable. In this case, $dz = 0.01$.

In fig: c, Both the trajectories of exact solution and numerical solution overlap. In this case $dz = 0.001$