

Problem #4.1

(a) For general u_0 ?

Note also that for $u_0 > c_0$: $A^+ = A$ and $A^- = 0$,
and for $u_0 < -c_0$: $A^+ = 0$ and $A^- = A$.

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Problem #4.2

Fine.

(d) The "large time step" method discussed in Problem 4.3 could do what you suggest here. It wouldn't violate the CFL condition but would require a larger stencil than the 3-point methods discussed in 4.2.

Problem #6.1

Fine.

Problem #6.2

Fine.

Problem #6.3

Fine.

Problem #6.4

Fine.

Problem #6.5

Fine.

Problem #6.6

Fine.

Additional Problem

Fine.