

### MAR665: Homework#3

Examine the phase error introduced in the one-dimensional advection equation

$$\frac{\partial \phi}{\partial t} + c \frac{\partial \phi}{\partial x} = 0,$$

by

- a. forward time/backward space scheme, and
- b. fully implicit scheme.

For what value, if any, of  $c\Delta t/\Delta x$  is the forward time/backward space scheme non-dispersive?