

1. What physical property is described by the *advection equation*?
2. What physical assumption converts the advection equation into Burger's equation?
3. What is the physical consequence of waves with larger amplitudes traveling faster?
4. Why do we need to improve the leapfrog algorithm for this problem?
5. What two types of instabilities might be present in the solution to Burger's equation?
6. What type of relation might there be between the frequency ω and the wave vector k for waves traveling in a dispersive medium?
7. Which two competing physical effects can lead to *solitons*?