Math 330 Reading Questions

Section 4.2

Read pages 140–149 in the textbook and answer the following questions. This sheet will be collected at the beginning of the next class. Your responses will be graded for completeness.

1. What is the general form of the series solution to the wave equation with homogeneous Dirichlet boundary conditions?

2. Does the wave equation smooth out discontinuities and corners in the initial data?

3. For the wave equation with homogeneous Neumann boundary conditions, What happens to the solution if $c_0 \neq 0$?

4. How can d'Alembert's solution be adapted to the case of periodic boundary conditions?

5. How does Figure 4.6 illustrate d'Alembert's solution with fixed endpoints?

6. How do d'Alembert's formula and Fourier series provide two different perspectives on solutions to the wave equation?