For all the following multiple-choice questions, circle your answers clearly. No partial credit will be awarded; any scratch work will be ignored.

1. Which of the following is <u>not</u> true about the types of Fourier series we have considered?

(a) A Fourier *cosine* series is an even function.

(b) The Fourier *cosine* series equals the Fourier *sine* series.

(c) There is a formula that can be used to compute coefficients of a Fourier series.

(d) The graphs of Fourier cosine and sine series are periodic.

(e) A Fourier *sine* series is an odd function.

2. Which of the following PDE equations is the wave equation?

(a) $u_{tt} = u_x$

(b) $u_{tt} = u_{xx}$

(c) $u_t = u_{xx}$

(d) $u_{tx} = u_{xt}$

(e) $u_{tt} = u_{xt}$

3. Which statement is <u>not</u> true about the wave equation?

(a) Separation of variables can be used to solve the wave equation.

(b) The wave equation is a linear PDE.

(c) Boundary conditions are needed to fully specify a wave equation problem.

(d) It is not possible to compute the solution to the wave equation.

(e) Initial conditions are needed to fully specify a wave equation problem.