Math 330 Reading Questions

NAME

Read pages 126–132 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 happens to the Fourier series solution as $t \to \infty$?

2. If $b_1 \neq 0$, what is the asymptotic shape of the temperature profile?

3. In what sense does the heat equation instantaneously smooth out discontinuities and corners in the initial temperature profile?

4. What does it mean that diffusion is a "one-way" process?

5. What boundary conditions model heat flow in an insulated circular ring?

6. Any *equilibrium* solution to the heat equation satisfies what simpler differential equation?