

Math 309 Quiz 6

December 9, 2015

Problem 1. Find the asymptotic (steady state) solution to the heat equation problem:

$$\begin{aligned}u_t - 42u_{xx} &= 0 \\u(0, t) = 0, u(2, t) &= 14 \\u(x, 0) &= 0\end{aligned}$$

Problem 2. Find the solution to the heat equation

$$\begin{aligned}u_t - 4u_{xx} &= 0 \\u_x(0, t) = 0, u_x(2\pi, t) &= 0 \\u(x, 0) &= \cos(x) - 4\cos(3x/2)\end{aligned}$$