Math 309 Quiz 5

May 26, 2017

Problem 1. Determine the cosine series of the 4π-periodic function $f(x) = \cos(x) + \cos(5x) - \cos(x/2)$ on the interval $[0, 2\pi]$.

Problem 2. TRUE or BANANAS: The homogeneous Dirichlet boundary value problem
$$y'' + \lambda y = 0$$
$$y(0) = y_0 \quad y(L) = y_1$$
will have either no solutions, one solution, or infinitely many solutions.

Problem 3. Calculate the sine series of $f(x) = x$ on the interval $[0, 1]$.