

## Homework 7, due 4/28, 10pm

1. [5pts] Solve the problem:

$$\begin{aligned}u_{tt} - 4u_{xx} &= 0 & 0 < x < 1, t > 0, \\u_x(0, t) = u_x(1, t) &= 0, & t \geq 0, \\u(x, 0) &= 2 \cos(3\pi x) + 4, & 0 \leq x \leq 1, \\u_t(x, 0) &= \sin^2(\pi x) - \cos^2(\pi x) & 0 \leq x \leq 1.\end{aligned}$$

You can use the general solution (or formula) derived in lecture.