1. (5 points) Solve the boundary value pde problem:

\[ u_{xx} = u_{tt} , \quad 0 < x < \pi , \quad t > 0 ; \]
\[ u(0, t) = 0 , \quad u(\pi, t) = 0 , \quad t > 0 ; \]
\[ u(x, 0) = \sin(7\pi x) , \quad u_t(x, 0) = \sin(8\pi x) , \quad 0 < x < \pi . \]

2. (5 points) Solve:

\[ u_{xx} + u_{yy} = 0 , \quad 0 < x < \pi , \quad 0 < y < 1 , \]

Subject to
\[ u(0, y) = 0 , \quad u(\pi, y) = 0 , \quad 0 < y < 1 ; \]
\[ u(x, 0) = 0 , \quad u(x, 1) = 5 , \quad 0 < x < \pi . \]