

Directions: Show **ALL** work for credit; Give **EXACT** answers when possible; **SIMPLIFY** your answers;

1. Solve Laplace's equation $u_{xx} + u_{yy} = 0$ for the square $0 \leq x, y \leq 1$ with boundary conditions $u(x, 0) = 0$; $u(x, 1) = x$; $u(0, y) = 0$; $u(1, y) = y$. (Hint: symmetry cuts your work in half.)

