Dr. Z.'s Math 421(2), (Fall 2014, RU) REAL Quiz #9

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

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

$$u_{xx} = u_{tt} \quad , 0 < x < \pi \quad , \quad t > 0 \quad ;$$

$$u(0,t) = 0 \quad , \quad u(\pi,t) = 0 \quad , \quad t > 0 \quad ;$$

$$u(x,0) = 3\sin x \quad , \quad u_t(x,0) = 6\sin(3x) \quad , \quad 0 < x < \pi \quad .$$

2. (5 points) Solve :

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

Subject to

$$u(0,y) = 0 \quad , \quad u(\pi,y) = 0 \quad , \quad 0 < y < 1 \quad ;$$

$$u(x,0) = 0 \quad , \quad u(x,1) = 3 \quad , \quad 0 < x < \pi \quad .$$