## Quiz 9

1. Use the method of separation of variables to replace the given partial differential equation with a pair of ordinary differential equations:

 $u_{xx} + u_{xt} + u_t = 0$ 

2. What is the steady state solution of

$$u_{xx} = u_t, \ 0 \le x \le 1, \ t > 0$$
  
$$u(0,t) = 0, \ u(1,t) = 2$$
  
$$u(x,0) = 2x + \sin \pi x$$