

## Math 217 - October 14, 2010

- Boundary Value Problems
- Systems

1. For any  $\lambda$ , find all solutions to

$$y'' + \lambda y = 0, \quad y(0) = 0, y(1) = 0$$

2. For any  $\lambda$ , find all solutions to

$$y'' + 2y' + \lambda y = 0, \quad y(0) = 0, y(1) = 0$$

### Lecture Problems

3. Solve the system

$$\begin{aligned} x' &= -2y & x(0) &= 1 \\ y' &= 2x & y(0) &= 0 \end{aligned}$$

4. Solve the system

$$\begin{aligned} x' &= y & x(0) &= 1 \\ y' &= 6x - y & y(0) &= 2 \end{aligned}$$