HOMEWORK ASSIGNMENT #1

All the assignments are from the textbook, unless otherwise specified.

- **Reading Assignment:** Chapter 2, Sections 1,2,3,4. Chapter 3, Section 1, 2, 3, 4, 5, 6, 7, 8.

- **Written Assignment:** Chapter 3, #1(a,c); #2 and the following exercise.

**Exercise.** For each of the following problems, find a function $y$ which satisfies the associated Euler-Lagrange equation and the given endpoints condition:

1. $\int_0^1 (y'^2 + 2y) dx \quad y(0) = 0, \quad y(1) = 1$

2. $\int_{-1}^2 (y'^2 + 2yy') dx \quad y(-1) = 1, \quad y(2) = 0$

3. $\int_0^1 (y'^2 + 2xy' + x^2) dx \quad y(0) = 0, \quad y(1) = 0$

4. $\int_0^2 (y'^2 + 2yy' + y^2) dx \quad y(0) = 0, \quad y(2) = 1$

Due date: September 19th.