MATH 319, Fall 2013, Assignment 5

Due date: Friday, October 18

Name (printed): _____

UW Student ID Number: _____

Discussion Section: (circle)

Liu Liu:	**301**	**302**	**303**	**304**
Huanyu Wen:	**305**	**306**	**323**	**324**
Dongfei Pei:	**325**	**326**	**329**	
Kai Hsu:	**327**	**328**		

Instructions

1. Fill out this cover page **completely** and affix it to the front of your submitted assignment.
2. **Staple** your assignment together and answer the questions in the order they appear on the assignment sheet.
3. You are encouraged to collaborate on assignment problems but you must write up your assignment independently. **Copying is strictly forbidden!**

Correctness
/20

Completeness
/5

Total:	/25
Bonus:	/3

Second-Order Linear ODEs

Suggested problems:

Section 3.1: 1-22
Section 3.2: 1-6, 13, 14, 17-28, 41-45
Section 3.3: 1-22, 27, 34-42
Section 3.4: 1-16
Section 3.5: 1-26, 29, 30

Problems for submission:

Section 3.1: 10, 18
Section 3.2: 5, 6, 27
Section 3.3: 11, 20, 35
Section 3.4: 8, 12
Section 3.5: 7, 9
(Justify your answers for full marks!)

Bonus Use the method from lecture to find the general solution of

$$8y'''(x) + 12y''(x) + 6y'(x) + y(x) = 0.$$

That is to say, use the assumption $y(x) = e^{rx}$ to find one solution and then use the construction $y_2(x) = u(x)y_1(x)$ to find others. [*Hint:* Since the differential equation is third order, you must find *three* solutions overall!]