MATH 319, Fall 2013, Assignment 9

Due date: Monday, November 25

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

Suggested problems:

Section 6.1: 1-20
Section 6.2: 1-26
Section 6.3: 1-24
Section 6.4: 1-16

Problems for submission:

Section 6.1: 6, 15
Section 6.2: 7, 14, 23
Section 6.3: 8, 17, 20
Section 6.4: 5, 9 (part (a) only)
(Justify your answers for full marks!)

Bonus! One notable exception to our list of Laplace transform identities has been

$$\mathcal{L}\{x^n f(x)\}.$$

That is to say, we have no general identity for the Laplace transform of a standard function multiplied by a power of x.

Suppose that $\mathcal{L}\{-f(x)\} = F(s)$. Use the definition of the Laplace transform to show that $\mathcal{L}\{xf(x)\} = -F'(s)$. Use this to evaluate

$$\mathcal{L}^{-1}\left\{\frac{4s}{(s^2+4)^2}\right\}.$$

[*Hint:* See Section 6.2, Question # 28 for technical help.]