2015 Fall Math 217 Assignment 8. Due: Nov 13, 2015

Student No.

Name:

All problems are from Elementary Differential Equations (and Boundary Value Problems) 10ed by Boyce and DiPrima.

Try the following problems, but you do not need to hand in the solutions.

§5.3 24, 26

§5.4 14

§5.5 11

§5.6 1, 14

Please hand in the solutions to the following problems.

§5.3 2, 4, 5, 8, 12, 14, 19, 21, 22, 23

Note: For 12, you just need to compute the power series solutions up to x^4; for 14, you just need to compute the power series solutions up to x^3.

§5.4 3, 6, 7, 18, 20, 30, 31

§5.5 1, 5

For graders

1.

2.

3.

4.

Total:

Here are some Taylor series that might be useful:

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!} = 1 + x + \frac{x^2}{2} + \frac{x^3}{3!} + \dots$$

$$\cos x = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!} = 1 - \frac{x^2}{2} + \frac{x^4}{4!} - \dots$$

$$\sin x = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!} = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots$$

$$\cosh x = \sum_{n=0}^{\infty} \frac{x^{2n}}{(2n)!} = 1 + \frac{x^2}{2} + \frac{x^4}{4!} + \dots$$

$$\sinh x = \sum_{n=0}^{\infty} \frac{x^{2n+1}}{(2n+1)!} = x + \frac{x^3}{3!} + \frac{x^5}{5!} + \dots$$

$$\ln(1+x) = \sum_{n=1}^{\infty} \frac{(-1)^{n+1} x^n}{n} = x - \frac{x^2}{2} + \frac{x^3}{3} - \dots$$

$$\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n = 1 + x + x^2 + x^3 + \dots$$