Physics 301-001: Assignments for April 4th

Homework #7: Series Solutions III

Reading Assignment:
During this week, you should be reading the following (in order):

1) Boas, ch.12

Practice Problems:
We have listed problems from the textbook that involve related skills and concepts; answers to these problems may be found in the back of the text. You should use these extra problems for practice and review, but they do *not* need to be turned in.
Selected Practice Problems from Boas: 12.10.5, 12.11.5, 12.11.7, 12.12.2, 12.13.2, 12.15.1

1. In book problems (80 pts)

12.10.2	12.10.4	12.11.4	12.11.6	12.11.13
12.12.3	12.13.1	12.15.2	12.19.1	12.23.19

2. Use Math Lab to plot the first 4 Bessel functions of the first kind (10 pts)

3. Using your calculus book and write out the fundamental definition of the derivative and integral. (10 pts). Show how you can implement the numerical operations in Matlab by taking the integral [from 1 to 2] and derivative of the following function:

$$f(x) = 8x^3 - x$$

Note, You can do these operations analytically. I want you to do them and plot them in Matlab. But that is only 1/10th of the problem. I want you to use numerical logic to find the integral and derivative.