Homework 2 – PHYS 2321

1. Prove that:

Note that:

1. Prove that the previous derivative has an error relative to the h of 5 inside the brackets:

The Taylor Expansions needed are as follows:

Then we can do the following:

Then:

Then the final statement becomes:

Notice that each n (integer greater than 0) will result in an odd h in the brackets and an even h for the total, which is what the solution calls for.

For test, n being 0 will give the first case:

For n being 1, giving an h of 3 in the brackets:

Both these results check out with what we achieved in class. Now to see what happens when h of 5 is in the brackets. Let n be 2, then:

Which is negative of that of what the answer was said to be in class.