Differential Power:

Power:

Extract Constants:

Substitute given functions:

Multiply the root by ω \* 1/ω, distribute the 1/ω:

Simplify Constants. Take:

And:

Distribute, Separate Integrals:

First integral is trivial. Pull constants out of second integral:

Distribute within second integral:

All the integrals are now trivially solvable:

Put it all together:

Evaluate W at r = R and r = rh to compute total power. It can be slightly simplified; we leave the exercise to the reader.

This is how it is currently coded. Now we start shoehorning it into the form required by Carey:

Replace the rh:

Sub in for A and multiply by R/R:

Substitute lambda and square, replace B:

THIS ISN’T BETTER. Now evaluate from R to rh.