PHYS 600: HW 3

Problem 3

Expand the integrand for χ to second order:

In[•]:=
```
dχ[z_] := c / (h0 Sqrt[Ωm (1 + z)^3 + Ωlam + (1 - Ωm - Ωlam) (1 + z)^2])
```

In[•]:=
```
dχSeries = Series[dχ[z], {z, 0, 2}]
```

Out[•]=

$$\frac{c}{h0} + \frac{c\,(-2 + 2\,\Omega\text{lam} - \Omega\text{m})\,z}{2\,h0} + \frac{c\left(8 - 20\,\Omega\text{lam} + 12\,\Omega\text{lam}^2 + 4\,\Omega\text{m} - 12\,\Omega\text{lam}\,\Omega\text{m} + 3\,\Omega\text{m}^2\right) z^2}{8\,h0} + O[z]^3$$