1. **Equations 1.14-1.15 are very important for this topic. First, show that by carrying out the procedure in the paragraph under Eq. 1.15, considering the delta function correlation, that you arrive at the power proportionality stated in the paragraph. Then describe how Fig. 1.8 accurately reflects this scenario. You need only describe the simple mathematics with words . . . no need to write full equations. But be specific.**

   The Fourier transform of a delta function (in general) is proportional to the integral of the product of the delta function and an exponential. After integrating, $P(k)$ is equal to the exponential since the integration of the delta function (the correlation function) is 1. Since the correlation function only has one value at r_*, this corresponds to a single frequency in Fourier space, as shown in figure 1.8.

2. **Now, consider gamma=2 in Eq. 1.14. Using Eq. 1.15, show in this case that one should expect curves as plotted in Fig 1.9. Again, you need only describe the simple mathematics with words . . . no need to write full equations. But be specific.**

   For $\gamma = 2$, the r factors in the integrand cancel, and $P(k) = -\left(\frac{r_o}{ik}\right) e^{-ikr} \propto e^{-ikr}$. Thus, as k increases, $P(k)$ should damp out, as shown in figure 1.9.

3. **What is the era of recombination? How does Fig. 1.10 depict this important era?**

   The era of recombination (more like the era of combination) started at the time after the big bang when the universe had cooled to a temperature low enough for nuclei and electrons to combine and form atoms, around $z \approx 1000$. This is illustrated in figure 1.10, where the mass profile for baryons "stalls" between the panel at $z = 1440$ and the one at $z = 848$. This overdensity for the baryons occurred because the combination of atoms removed the pressure on the baryons, but the pressure on photons was unaffected, allowing them to propagate away in the form of the CMB.