1. Your water bottle is full of water at room temperature. Picky you wants the water 1.00 Kelvin warmer. Instead of heating it up in the microwave or on the stove, you decide to drop it from 1 meter multiple times, reasoning that most of the gravitational PE eventually goes to heating up the water (PE → KE just before hitting the ground → a change in internal energy of the water in the water bottle). Assuming all this energy goes into heating up the water, how many times do you have to drop the water bottle from 1 meter to warm it up the required amount?

2. First read example 19.6. This problem will be the same exact setup, except we will replace “ethyl alcohol” with “water.”

   (a) First, without any calculation, guess whether the final answer will be less than 20°C, between 20°C and 26°C, or greater than 26°C. Explain.

   (b) Now, find the exact answer by replicating the solution to the example in the book.

[not due; for extra practice]. All problems from Chapter 19 of the 4th edition of Knight:

   Conceptual Questions: None for these two particular sections. More to come after section 19.7, though.

   Exercises: 15, 19-21.