6. [10 points] Calvin is stuck in the desert, and he needs to build a cube out of cactus skins to hold various supplies. He wants his cube to have a volume of 8.1 cubic feet, but he needs to figure out the side length to cut the cactus skins the right size. He has forgotten his trusty calculator, so he decides to figure out the side length of his cube using calculus.

   a. [5 points] Find a local linearization of the function $f(x) = (x+8)^{1/3}$ at $x = 0$.

   b. [3 points] Use your linearization to approximate $(8.1)^{1/3}$.

   c. [2 points] Should your approximation from part **b.** be an over-estimate or an under-estimate? Why?