Problems discussed in the videos:

Videos (2) – (3)
An astronomer is trying to estimate the surface temperature of a star with a radius of 5.0×10^{8} m by modeling it as an ideal blackbody. The astronomer has measured the intensity of radiation due to the star at a distance of 2.5×10^{13} m and found it to be equal to 0.055 W/m^2. Given this information, what is the temperature of the surface of the star?

Video (5)
Through what potential difference ΔV must electrons be accelerated (from rest) so that they will have the same wavelength as an x-ray of wavelength .135nm?

Videos (8) – (9)
(a) Find the frequency of light f radiated by an electron moving from orbit n_1=2 to n_2=1 inside of a He^+ ion.

(b) In the Bohr model of hydrogen, the radius of the nth orbit is defined as $r_n = a_0 \frac{n^2}{Z}$, where a_0=5.29×10^{-11} m is called the Bohr radius. Find the radius r_1 of a valence orbital for a He^+ ion.