

Problem discussed in the videos:

Two very long straight wires are carrying a current I . To make it easier to grade the problem properly, use the axes shown in the figure [drawn on blackboard in the videos]. An electron is traveling at a speed v parallel to the wires, exactly in between them and at a distance d from them, and in the direction shown.

- (a) Are there any electrical or magnetic forces on the electron? If so, why, and if not, why not?
- (b) Find the direction and magnitude of any force(s) on the electron in terms of the constants given and other constants of nature. Be sure to explain the physics behind your calculations.
- (c) If the speed of the electron is very small, but not zero, what is the shape of its trajectory? Why?