

Name _____ Instructor name _____

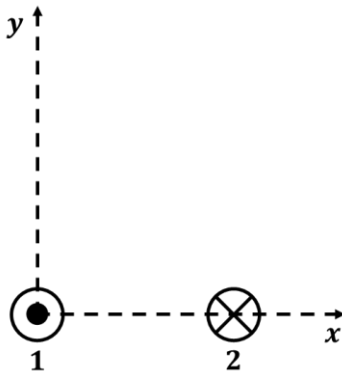
You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.

1. The figure shows an end view of two wires carrying current.

⊗ means that the direction of the current points into the page, and

⊙ means out of the page.

What is the direction of the force that *wire 1* exerts on *wire 2*? Please provide a detailed explanation. (5 pts)



2. Refer to the figure in question 1. Is the direction of the magnetic field around wire 1 clockwise or counterclockwise? (5 pts)

3. Two wires carrying equal currents exert a force \mathbf{F}_0 on each other. (a) The current in each wire is doubled, while the separation distance remains constant. What is the magnitude of the force, \mathbf{F}' , in terms of \mathbf{F}_0 , that one wire exerts on the other? Please show detailed calculations. (b) When a magnetic field is parallel to a current-carrying wire, what is the force on the wire? (10 pts)