PHYS 212 B due to I Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The magnetic field due to a long straight wire, carrying a current I, at a distance r is given by; (μ0= 4πx10-7 T.m/A)



 $B=\frac{μ\_{0}I}{2πr}$

a. Show the magnetic field, at both sides
of the long-wire carrying current I, using
crosses and dots, in the diagram.

b. (P11)

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In Fig. [29-41](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c29/halliday9118/halliday9088c29/halliday9088c29xlinks.xform?id=halliday9088c29-fig-0041), two long straight wires are perpendicular to the page and separated by distance *d*1 = 0.75 cm. Wire 1 carries 6.5 A into the page. What are the (a) magnitude and (b) direction (into or out of the page) of the current in wire 2 if the net magnetic field due to the two currents is zero at point *P* located at distance *d*2 = 1.50 cm from wire 2?

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c. Figure below shows wire 1 in cross section; the wire is long and straight, carries a current of 4.00 mA out of the page, and is at distance from the x-axis. Wire 2, which is parallel to wire 1 and also long, is at horizontal distance from wire 1 and carries a current of 6.80 mA into the page. What is the net magnetic field at the origin?

