Name _____
Physics 51 Section ___ Box # _____
Problem Set 7
18 October 2018

Collaborators:

HRK P33.8 A thin plastic disk of radius R has a charge q uniformly distributed over its surface. If the disk rotates at an angular frequency ω about its axis, show that the magnetic field at the center of the disk is

$$B = \frac{\mu_0 \omega q}{2\pi R}$$

(Hint: The rotating disk is equivalent to an array of current loops.)

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HRK 33.15 Figure 33-43 shows a cross section of a long, thin ribbon of with w that is carrying a uniformly distributed total current i into the page. Calculate the magnitufe and the direction of the magnetic field $\vec{B}$ at a point P in the plane of the ribbon at a distance d from its edge. (Hint: Imagine the ribbon to be constructed from many long, thin, parallel wires.)

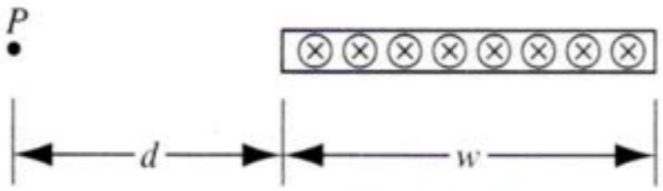

FIGURE 33-43. Exercise 15.

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