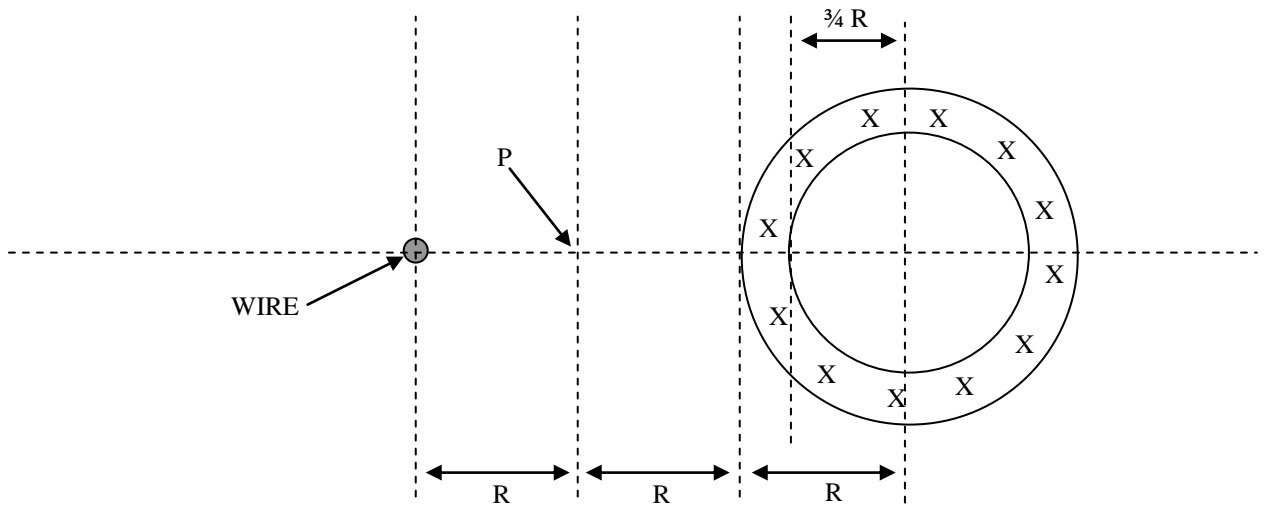


Physics 114 – Spring 2015 – Problem Set 9

- 1) 28-3
- 2) 28-13
- 3) 28-18
- 4) 28-19
- 5) 28-26
- 6) 28-35
- 7) Review your class notes from March 19 where we did problem 28-31. Then do problem 28-32.
- 8)

A wire lies parallel to a conducting pipe of radius R and thickness $\frac{1}{4}R$. The wire lies at a distance of $3R$ from the center of the pipe. The wire and pipe are configured perpendicular to the paper, as shown below in a sketch. The pipe carries a uniform current of magnitude I directed into the paper. The current is in the region shown. That is to say, the interior of the pipe ($r < \frac{3}{4}R$) is empty and carries no current.

- (a) Determine the magnitude and direction of current in the wire which will cause the magnetic field at point P to be zero.
- (b) Given your answer to part (a), what is the magnitude and direction of the magnetic field at the center of the current-carrying pipe?



- 9) 29-2
- 10) 29-3
- 11) 29-8
- 12) 29-12
- 13) 29-18
- 14) 29-19
- 15) 29-22
- 16) 29-25
- 17) 29-28
- 18) 29-31