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Problem 1

A steady current I flows down a long cylindrical wire of radius a (Fig.1). Find the magnetic field, both inside and outside the wire, if

(a) The current is uniformly distributed over the outside surface of the wire.

(b) The current is distributed in such a way that J is proportional to s, the distance from the axis.

Problem 2

Two long coaxial solenoids each carry current I, but in opposite directions, as shown in Fig.2. The inner solenoid (radius a) has n_1 turns per unit length, and the outer one (radius b) has n_2. Find **B** in each of the three regions: (i) inside the inner solenoid, (ii) between them, and (iii) outside both.