

(2pts) 1.

The two circuits use identical batteries and wires of equal diameters. Rank in order, from largest to smallest, the currents I_1 , I_2 , I_3 , and I_4 at points 1 to 4.

Order:

pts. 1 & 2 in series.

$$\therefore I_1 = I_2$$

pts. 3 & 4 in series.

$$\therefore I_3 = I_4$$

Resistance of wire $R = \rho \frac{l}{A}$

$$\rho_a = \rho_b, \quad A_a = A_b, \quad l_a < l_b$$

$$\therefore R_b > R_a$$

\therefore current in circuit b $<$ current in circuit a.

$$I_1 = I_2 > I_3 = I_4$$

