A solenoid is producing a same steadily increasing magnetic flux through two circular circuits shown below.

Case A: Two identical bulbs #1 and #2 are in series. Each has a resistance $R$. Their brightness (or their electric power) is the same, i.e. $P_1 = P_2$.

Case B: Three bulbs are in series, each with a resistance $R$. #3 is close to #2. Electric powers are labeled by $P'_1$, $P'_2$ and $P'_3$.

Compare the powers of bulbs #1 and #2.

A) $P'_1 = P_1$ and $P'_1 = P'_2$.
B) $P'_1 = P_1$ and $P'_1 > P'_2$.
C) $P'_1 < P_1$ and $P'_1 = P'_2$.
D) $P'_1 < P_1$ and $P'_1 > P'_2$. 
For case A, denote the current $I$. The loop equation gives $\mathcal{E} - 2IR = 0$

or $I = \frac{\mathcal{E}}{2R}$. Correspondingly for case B, $\mathcal{E} = 3I'R$, or $I' = \frac{\mathcal{E}}{3R} = \frac{2}{3}I$. Since

$I' < I$, $P_1' < P_1$. Bulb #1 and bulb #2 are in series, so $P_1' = P_2'$.

Answer C.

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