Three identical bulbs are connected in two ways as shown. Denote the brightness without a prime when the switch is closed and with a prime \( i \) when the switch is open.

Compare the respective brightnesses of bulbs \( A \) and \( B \) when the switch is closed to when the switch is open.

A) \( B' > B \) and \( A' > A \)
B) \( B' < B \) and \( A' > A \)
C) \( B' > B \) and \( A' < A \)
C) \( B' < B \) and \( A' < A \)
\[ \frac{I'_B}{I_B} = \frac{\frac{V}{2R}}{\frac{V}{3R}} = \frac{3}{4} \]

\[ \frac{I'_A}{I_A} = \frac{\frac{V}{2R}}{\frac{V}{\frac{3R}{2}}} = \frac{3}{2} \]

Since the brightness is directly proportional to the power \( P = I^2 R \), \( B' < B \) and \( A' > A \).

Answer B.

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