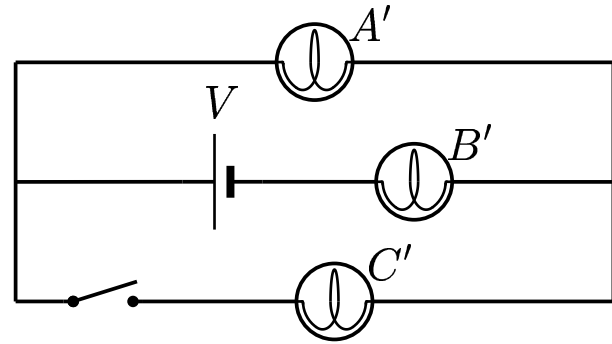
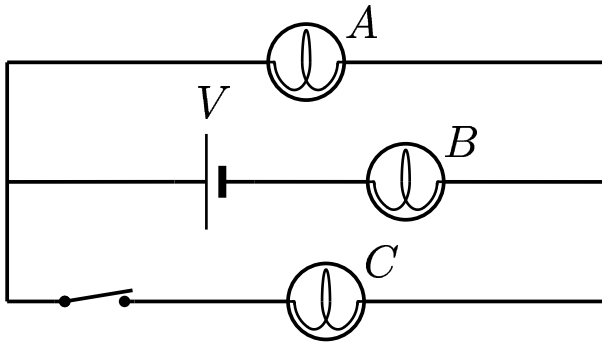


Three identical bulbs are connected in two ways as shown. Denote the brightness without a prime when the switch is closed and with a prime  $'$  when the switch is open.



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  $A' < A$

$$\frac{I'_B}{I_B} = \frac{\frac{V}{2R}}{\frac{3R}{2}} = \frac{3}{4}$$

$$\frac{I'_A}{I_A} = \frac{\frac{V}{2R}}{\frac{1}{2} \frac{V}{3R}} = \frac{3}{2}$$

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

Answer **B**.