
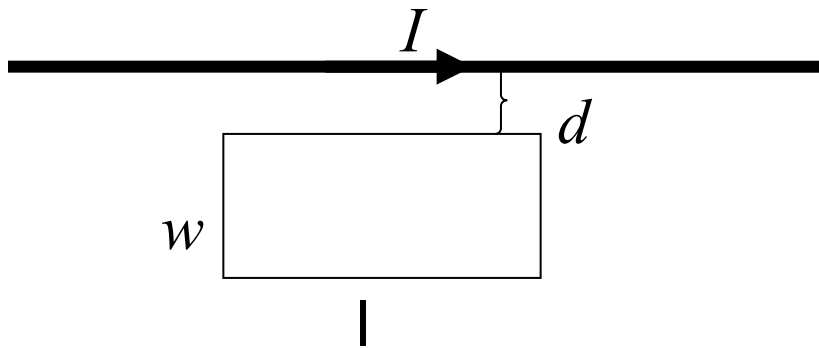


A rectangular loop of wire lies in the same page as a wire carrying a constant current. The rectangular loop has a length (parallel to wire) l and width w ; the wire carries a current I . The mutual inductance of the system will be doubled in which of the following cases? 

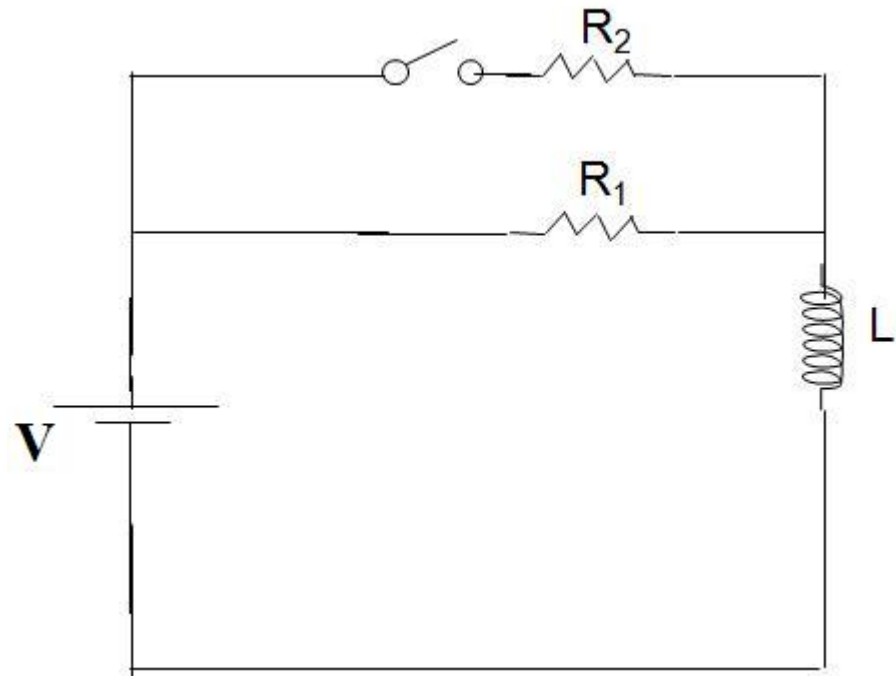



- I. I is doubled
- II. w is doubled
- III. l is doubled
- IV. d is halved

- | | | |
|-------------|-----------------|----------------------|
| 1. I only | 5. I or II | 9. II, III or IV |
| 2. II only | 6. I or III | 10. I, II, III or IV |
| 3. III only | 7. I, II or III | |
| 4. IV only | 8. II or III | |

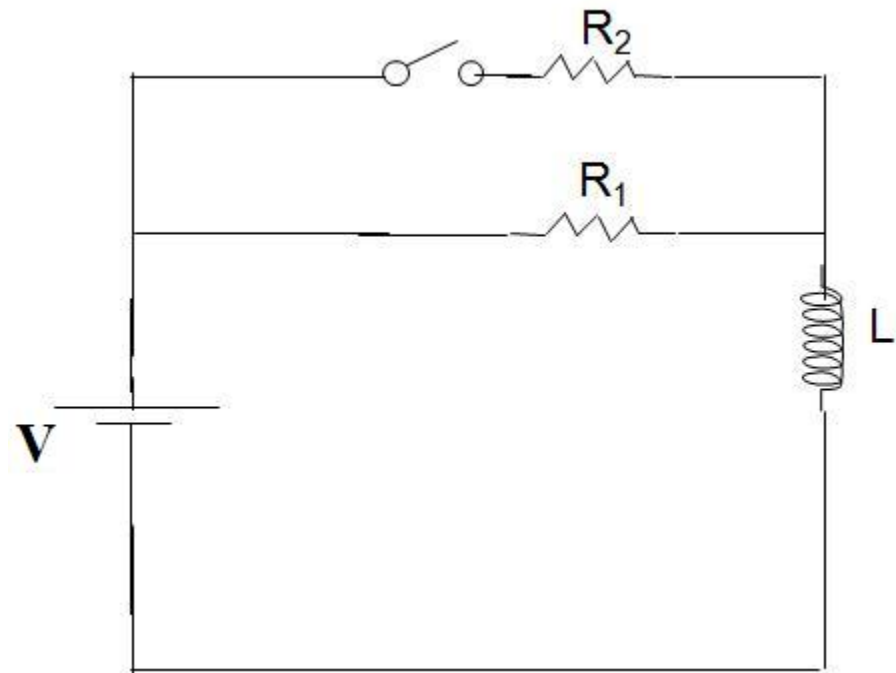
The switch in the circuit illustrated below has been open for a very long time. What is the current through the inductor the instant the switch is closed? 🗨️


1. 0
2. V/R_1
3. V/R_2
4. $V/(R_1 + R_2)$
5. $V * (R_1 + R_2) / (R_1 * R_2)$



The switch in the circuit illustrated below has been closed for a very long time. What is the current through the inductor? 

1. 0
2. V/R_1
3. V/R_2
4. $V/(R_1 + R_2)$
5. $V * (R_1 + R_2) / (R_1 * R_2)$



The switch in the circuit illustrated below has been closed for a very long time and is reopened. At the instant the switch is reopened, what is the current through R_1 ? 

1. 0
2. V/R_1
3. V/R_2
4. $V/(R_1 + R_2)$
5. $V * (R_1 + R_2)/(R_1 * R_2)$

