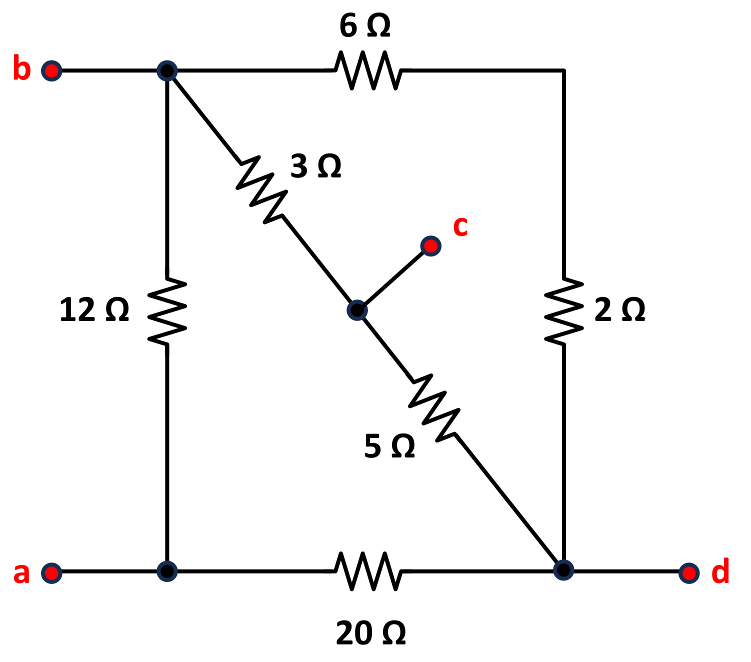
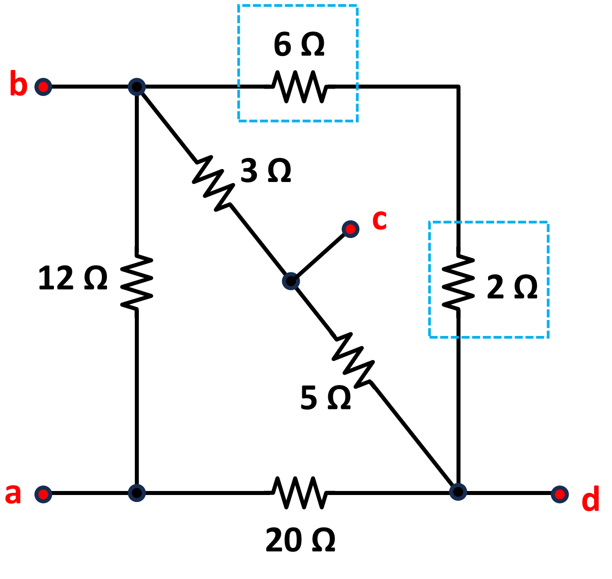
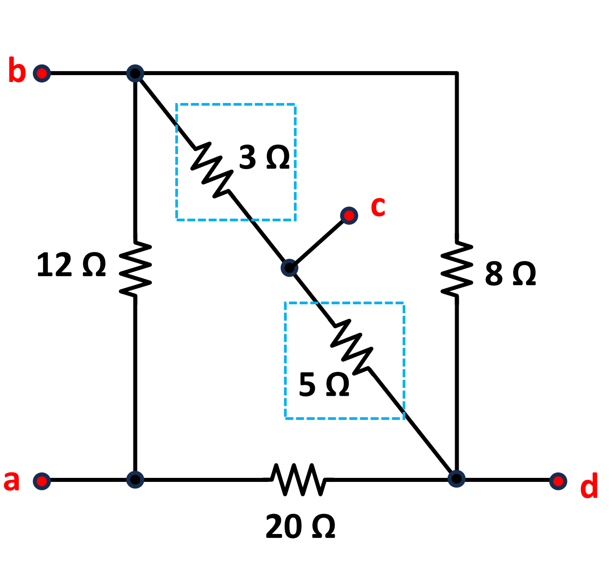


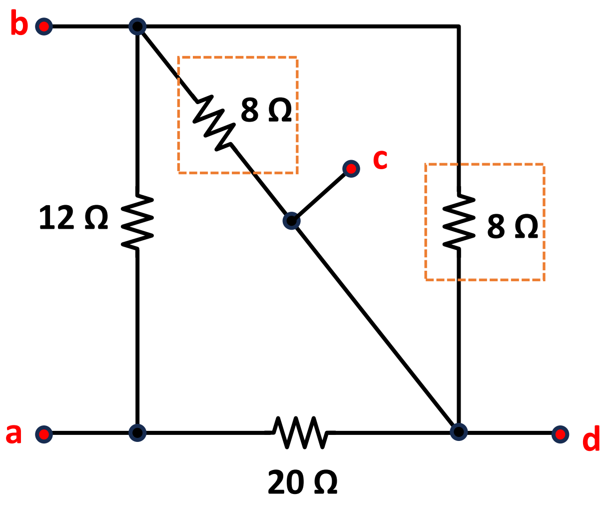
Equivalent resistance between a and b



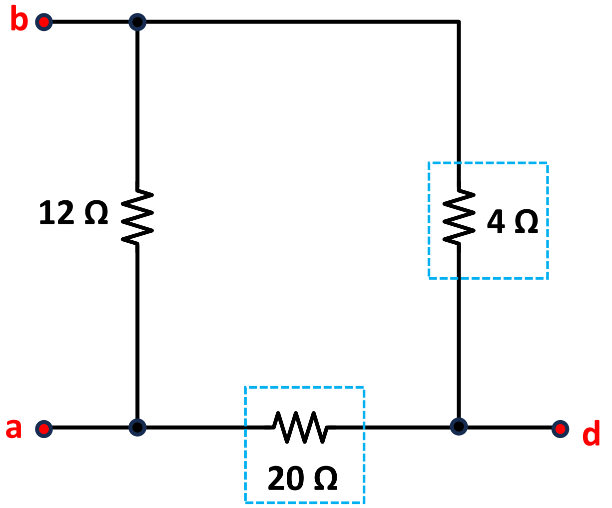
6 Ω and 2 Ω are in series



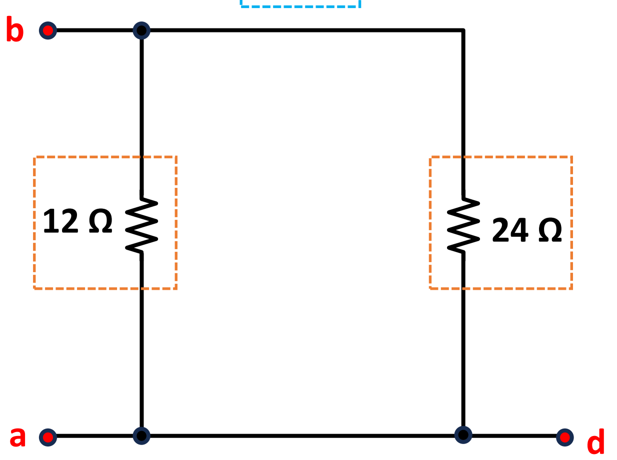
3 Ω and 5 Ω are in series,



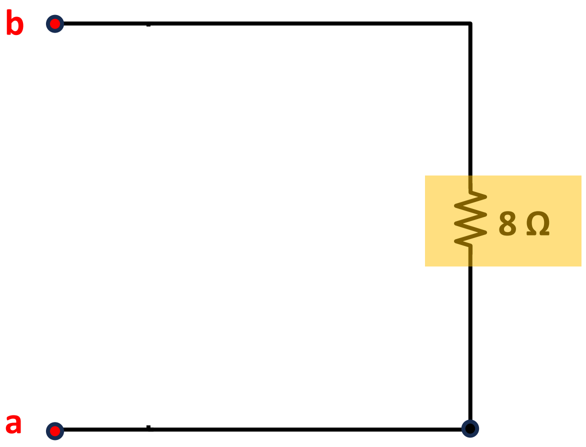
8 Ω and 8 Ω are in parallel



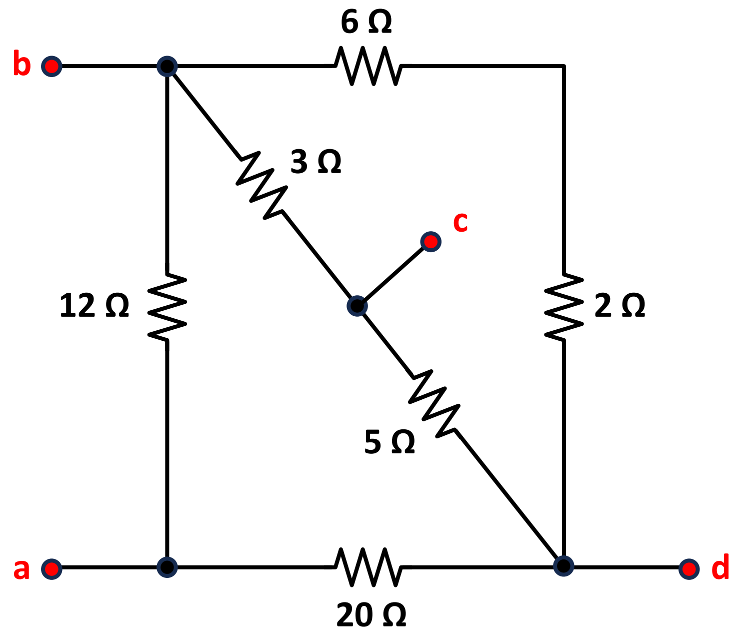
4 Ω and 20 Ω are in series



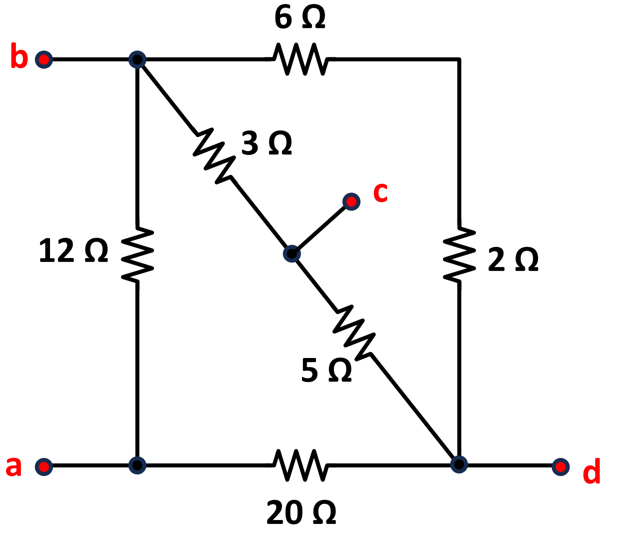
12 Ω and 24 Ω are in parallel



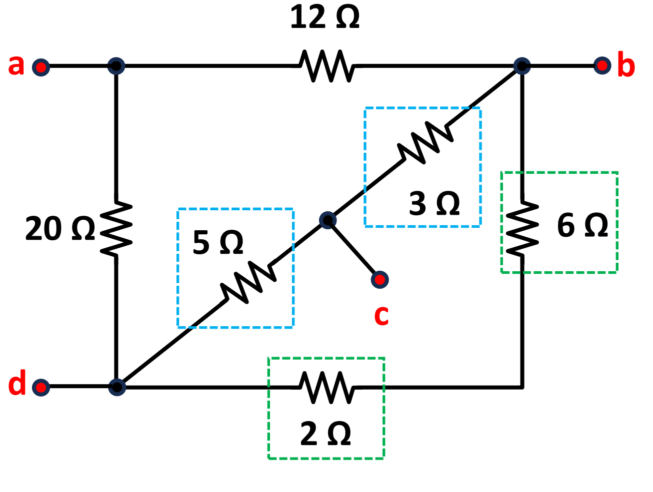
Equivalent resistance between a and b is 8 Ω



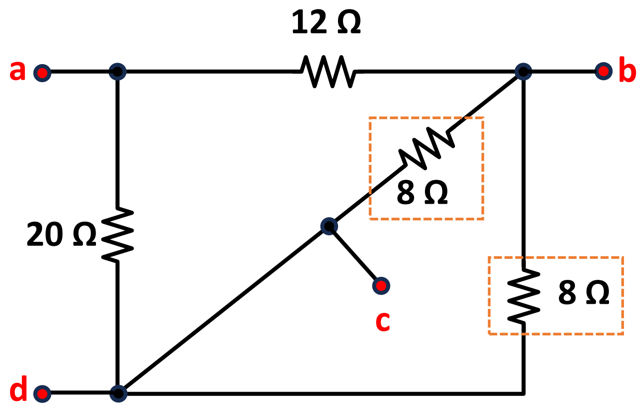
Equivalent resistance between a and d



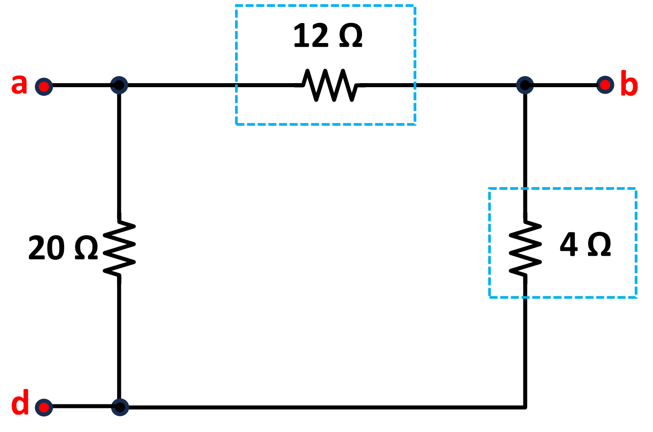
Let us rotate the circuit 90 ° Clockwise



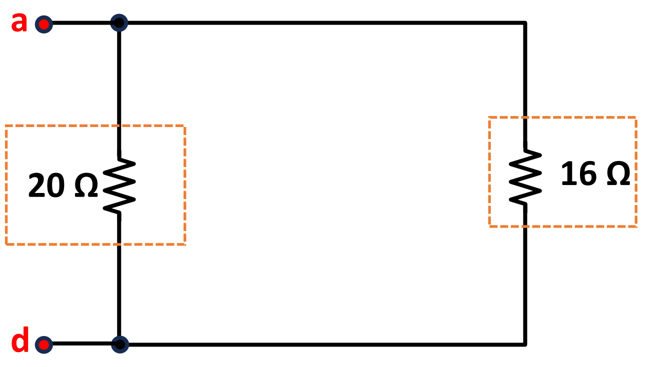
5 Ω and 3 Ω are in series
6 Ω and 2 Ω are in series



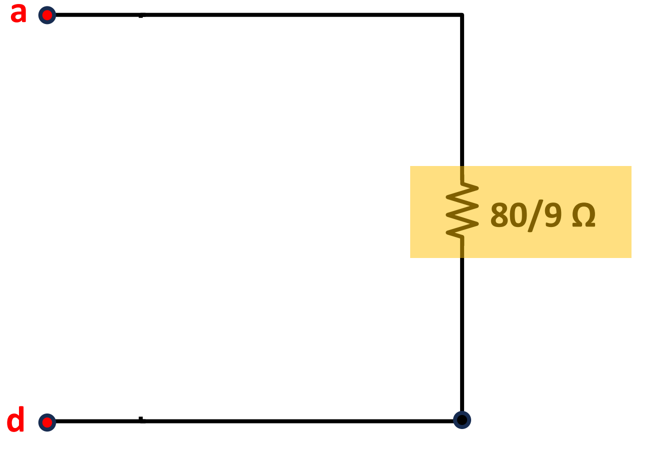
8 Ω and 8 Ω are in parallel,



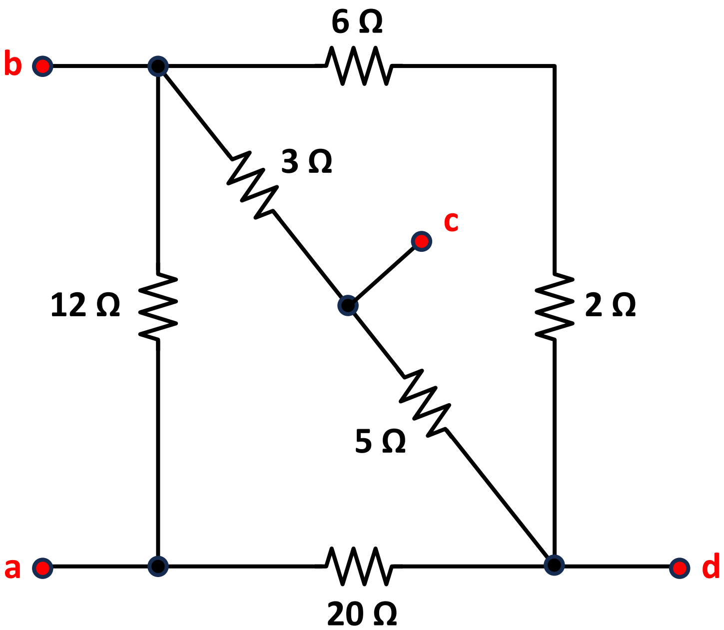
12 Ω and 4 Ω are in series



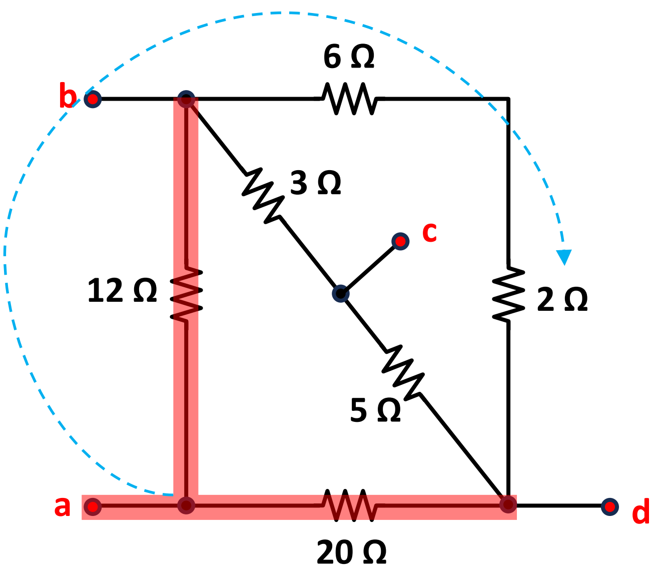
16 Ω and 20 Ω are in parallel



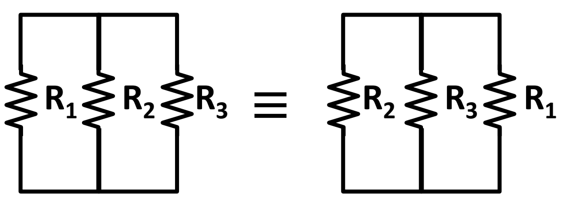
Equivalent resistance between a and d is 80/9 Ω

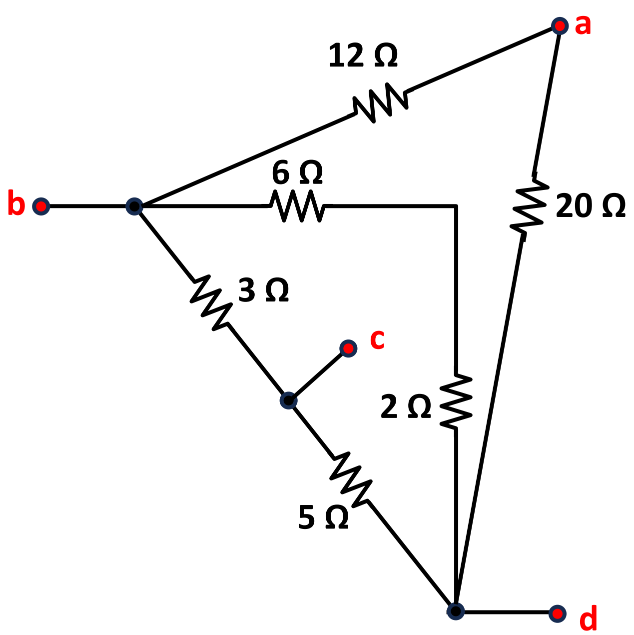


Equivalent resistance between b and d

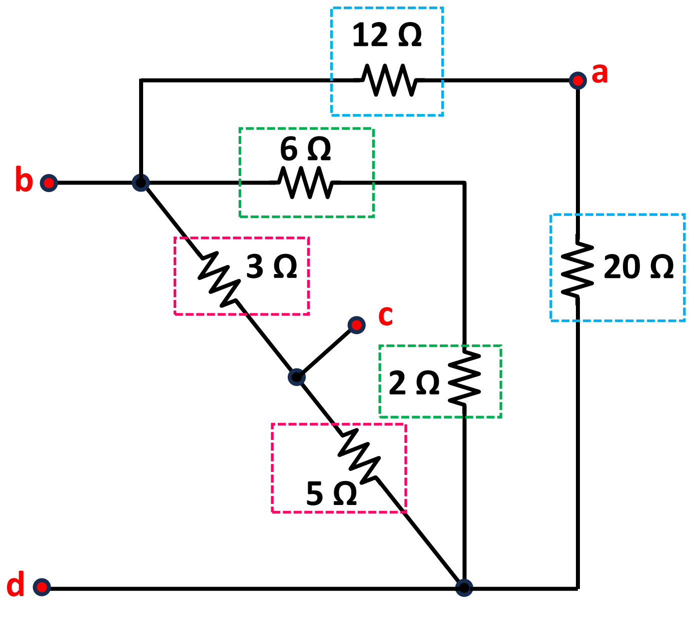


Let us bring the red portion in right side of b and d node. It does not change anything about the circuit

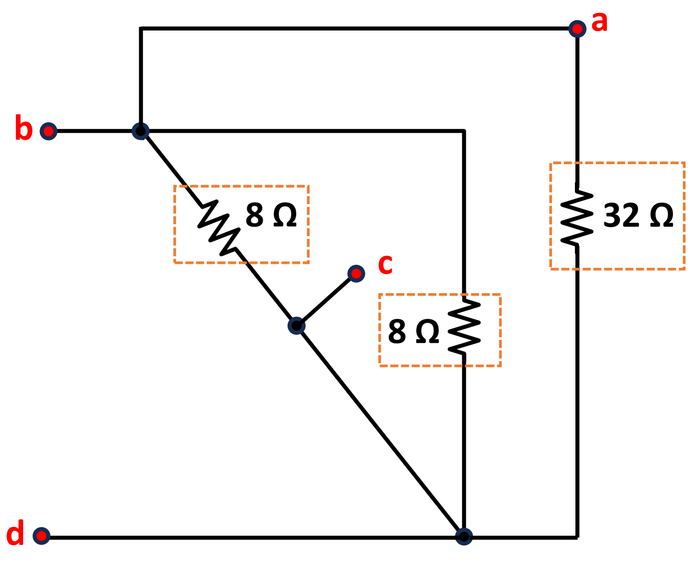




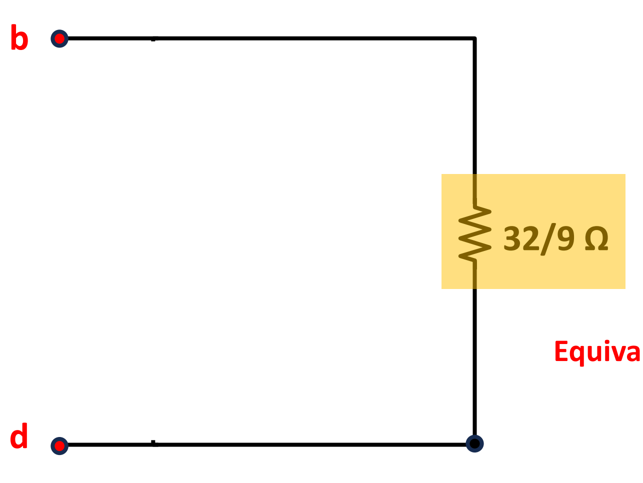
Let us just make the circuit visually better.



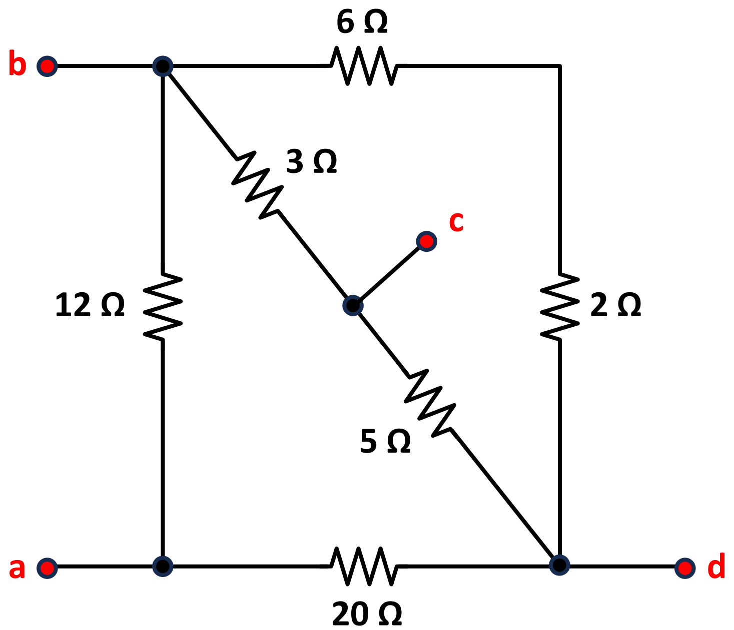
12 Ω and 20 Ω are in series
6 Ω and 2 Ω are in series
3 Ω and 5 Ω are in series



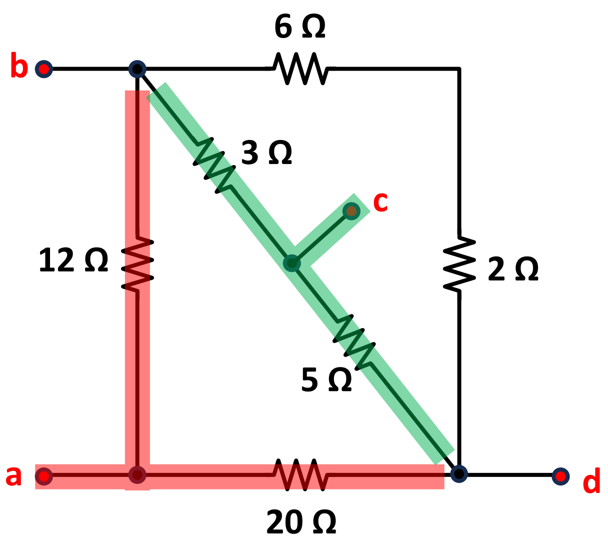
8 Ω, 8 Ω and 32 Ω are in parallel



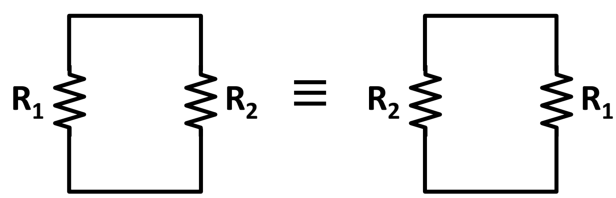
Equivalent resistance between a and d is 32/9 Ω

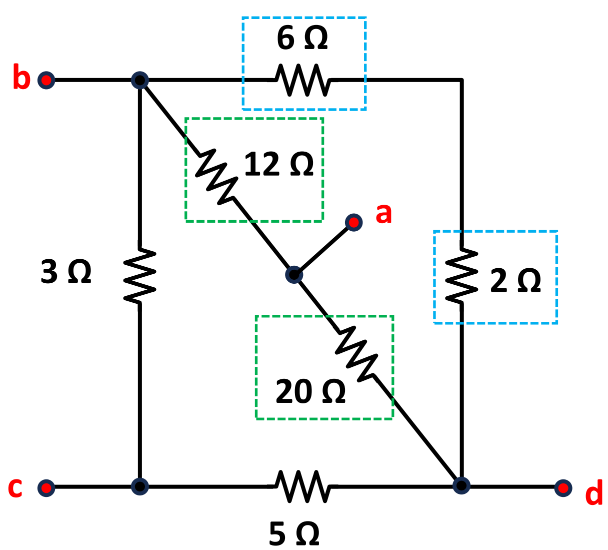


<u>Equivalent resistance between b and c</u>

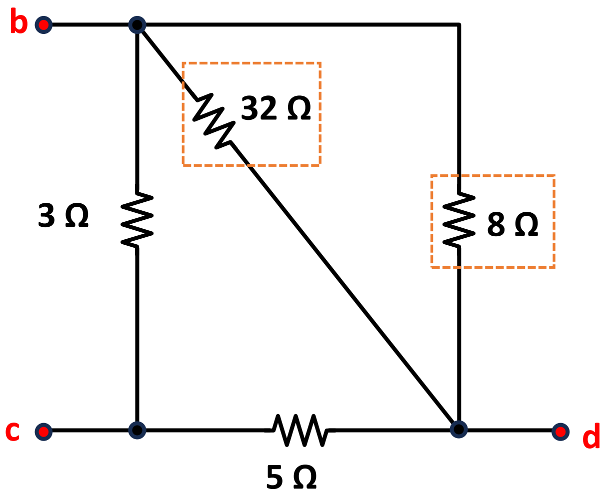


Let us exchange the position of the green portion and red portion. As the common nodes (b and d) are same. So exchanging their position will not effect the circuit

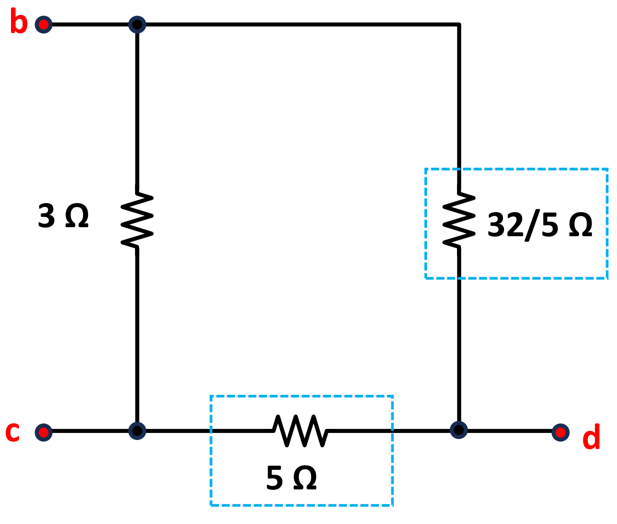




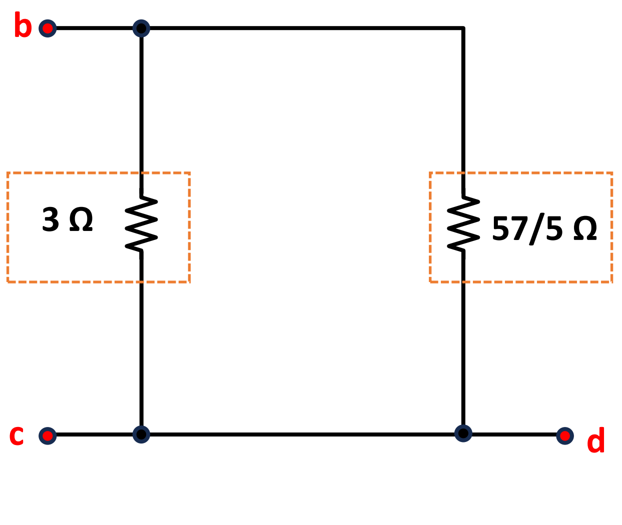
6 Ω and 2 Ω are in series
12 Ω and 20 Ω are in series



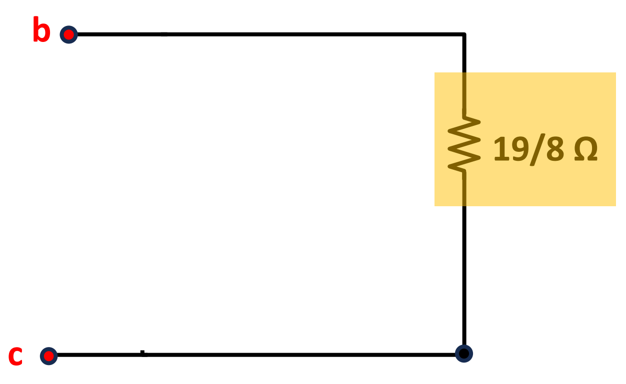
32 Ω and 8 Ω are in parallel



32/5 Ω and 5 Ω are in series



57/5 Ω and 3 Ω are in parallel



Equivalent resistance between b and c is 19/8 Ω