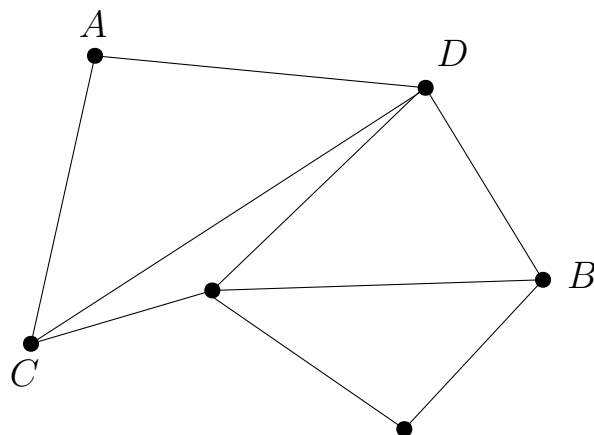


Consider the following circuit diagram in which each edge is a resistor with unit conductance.



A battery is attached to nodes A and B and leads to a unit current entering the circuit at A and leaving at B . The voltage difference

$$V_{CD} = V_C - V_D$$

is then measured.

Then the battery is disconnected from nodes A and B and reconnected to nodes C and D and leads to a unit current entering the circuit at C and leaving at D . The voltage difference

$$V_{AB} = V_A - V_B$$

is then measured.

Show that

$$V_{AB} = V_{CD}.$$