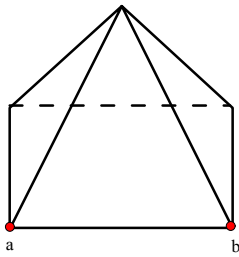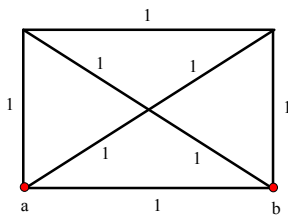Take each side of the pyramid having resistance 1 ohm. Find the resistance between a and b. Treat the dashed line just like any other line, i.e. having resistance 1 ohm.
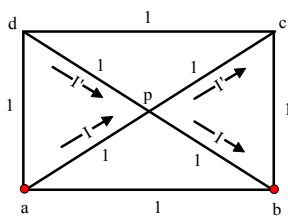

Solution

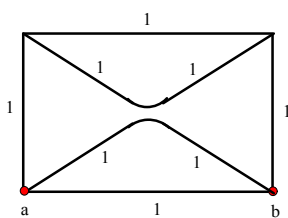Resistance is unaffected when a 3-D circuit is converted to 2-D circuit. So, the circuit can be redrawn as follows:
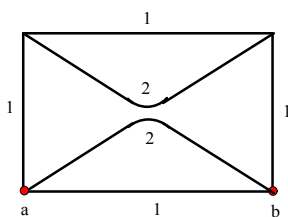

Let's analyse the circuit now.

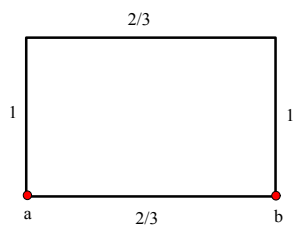Due to symmetry, $I_{ap} = I_{pb} = I(say)$ and $I_{dp} = I_{pc} = I'(say)$

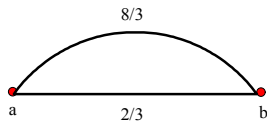This means that junction p can be simplified and the circuit an be redrawn as follows:

The circuit above can be simplified as series and parallel combination of resistors.

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The circuit above can further be simplified as follows:

Further,

$$R_{ab} = \dfrac{\dfrac{2}{3} \times \dfrac{8}{3}}{\dfrac{2}{3} + \dfrac{8}{3}} = \dfrac{2 \times 8}{3 \times 3} \times \dfrac{3}{10} = \dfrac{8}{15}\,\Omega$$