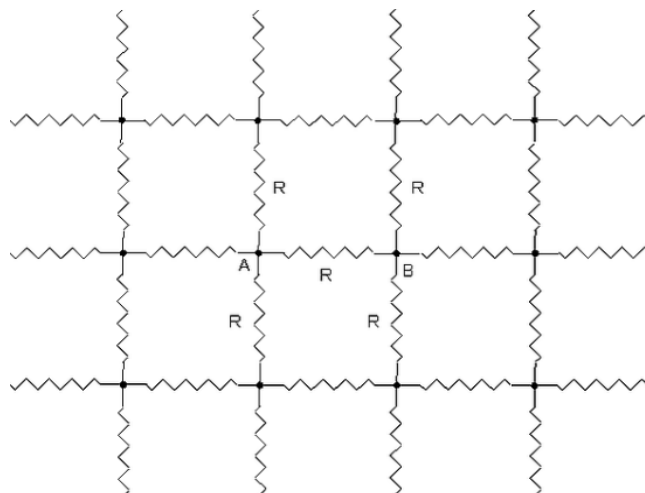Q - An infinite square grid of resistances, each R is shown in diagram. If a battery of EMF V with negligible internal resistance is connected between points A and B, what is the current through the battery?

If only point A is connected to positive terminal of the battery and the negative is earthed, as the grid is infinite where potential will be zero, a current will flow from the battery, say I_A. Due to symmetry the current will be divided equally in the four resistances connected to A. Thus, the current from A to B will be $I_A/4$

Similarly, if only negative terminal of the battery is connected to B and the positive is earthed current I_A will flow to the battery and again current $I_A\backslash 4$ will flow from A to B.
Using super position principle, we can say that if both terminals are connected to A and B the current in resistance Will be 2 I_A. This means that half of the current flowing through the battery is flowing through resistor AB and hence the equivalent resistance of the grid between points is R/2.

Hence the current through the battery will be

$I = V/(R/2) = 2V/R$