

A graph on 6 vertices has 11 edges. Prove that this graph is connected.

The minimum edge number in this problem: $6 - 1 = 5$. The maximum edges number in this problem is $6 * 5 / 2 = 15$. As long as the number of edges greater than $5 * 4 / 2 = 10$. The graph is connected. In this case, 11 edges are greater than 10. Hence, we get our desired output.