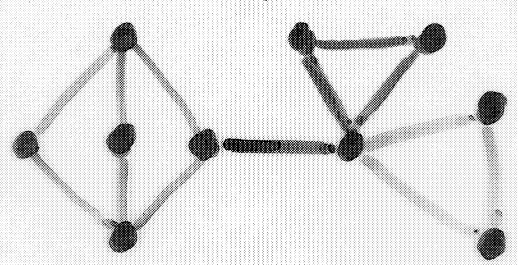
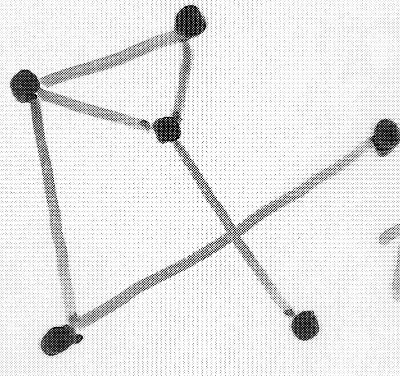
An immediate consequence of this is that Γ is bipartite iff it's 2-colourable; since we simply pick a node and colour it black, then colour all its neighbours red, continuing by alternating colours. The theorem guarantees that this will work for all cycles iff Γ is bipartite, and the non-cycles can be set to alternate until termination.

Sometimes the emphasis is more on the connectivity of a graph. We define a *cutnode* of Γ to be a node whose removal increases the number of connected components of Γ, and define a *bridge* of Γ to be an edge with the same property. Further, a *non-separable graph* is connected and has no cutnodes (and is non-trivial — has more than one node!). Given a graph Γ, a *block* of Γ is a maximal non-separable subgraph. For example ...

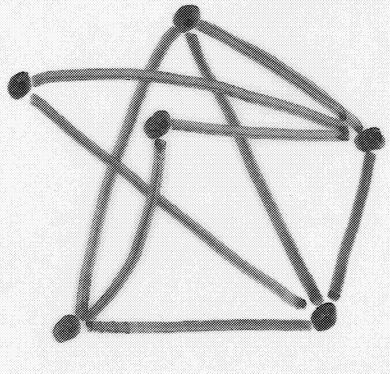


This graph has its four blocks separately coloured and has obvious cutnodes and an obvious bridge.

Given a graph Γ, its *complement* $\overline{\Gamma}$ has the same nodes as Γ, but a pair of nodes are joined by an edge in $\overline{\Gamma}$ iff they are not neighbours in Γ. For example ...



Γ



$\overline{\Gamma}$