

## Graph Theory: List of Theorems

- A graph  $G$  is bipartite if and only if it contains no odd cycle.
- Cayley's Formula
- Mader's Theorem
- Menger's Theorem
- Euler's Theorem
- The Nordhaus-Gaddum Theorem
- Dirac's Theorem
- The Chvátal-Erdős Theorem
- Hall's Theorem
- In any bipartite graph, the maximum size of a matching is equal to the minimum size of a vertex cover.
- Tutte's Theorem
- Petersen's Theorem
- The chromatic index of any bipartite graph is equal to its maximum degree.
- Vizing's Theorem
- Brooks' Theorem
- Turán's Theorem
- The Kővári-Sós-Turán Theorem
- Ramsey's Theorem
- Erdős' lower bound for the Ramsey number  $r(k, k)$ .
- Euler's Formula for planar connected graphs.
- The Four Color Theorem (with a proof that five colors suffice).