

References for Final

1. A graph is bipartite if and only if it does not contain an odd cycle.
2. A nontrivial connected multigraph has an eulerian circuit if and only if each vertex has even degree. Moreover, a connected multigraph has an eulerian trail from a vertex x to a vertex $y \neq x$ if and only if x and y are the only two vertices of odd degree.
3. A (d, g) -cage is 2-connected for $d \geq 2$ and $g \geq 3$.
4. If T is a tree and G is any graph with $\delta(G) \geq |T|$, then $T \leq G$.
5. For each connected graph G , $\kappa(G) \leq \kappa'(G) \leq \delta(G)$.
6. If G is 3-connected and $|G| > 4$, then G has an edge e such that G/e is again 3-connected.
7. Let $G = (A, B)$ be a bipartite graph. Then G has a matching saturates A if and only if for each subset S of A , $|N_G(S)| \geq |S|$.
8. Every 2-edge-connected cubic graph G has a 1-factor. Give an example to show that 2-edge-connected is necessary.
9. $Ex(n; K_{r+1}) = t_r(n)$ where $t_r(n)$ is the size of the balanced complete multipartite graph of order n .
10. $R(k) \geq 2^{k/2}$. ($k \geq 3$ and $R(k)$ is the Ramsey number $R(k, k)$.)
11. Let G be a (p, q) -graph which has an orientable 2-cell embedding on S_n . Then $p - q + f = 2 - 2n$ where f is the number of faces in the embedding.
12. If G is a graph of order p , then $2p^{1/2} \leq \chi(G) + \chi(\overline{G}) \leq p + 1$.
13. For each integer n , there exists a triangle-free graph G such that $\chi(G) = n$.
14. A bipartite graph is of Class 1.
15. Petersen graph is of Class 2.
16. A 3-regular planar graph G is of Class 1.
17. $X''(K_{2n+1}) = X''(K_{2n}) = 2n+1$.
18. Let S_j denote a star with j edges. Let G be a graph of order $2n$ which is obtained by taking away two disjoint stars of sizes 1 and $2n - 3$ respectively. Then G is of Type 2.
19. A tree of order 12 has a prime labeling.
20. Almost all graphs are of diameter 2.