问题与反馈

2014.12.24

9.3

- Degrees 3, 4,4,4,5,6,6.

9.5

- Show that there exists
- (a) a 4-regular planar graph and a 4-regular nonplanar graph
- (b) a 5-regular planar graph and a 5-regular nonplanar graph
- (c) no r-regular planar graph for r >=6.

9.7

- Give an example of each of the following or explain why no such example exists.
- (a) a planar graph of order 4
- (b) a nonplanar graph of order 4
- (c) a nonplanar graph of order 6 that contains neither K5 nor K3,3 as a subgraph.
- (d) a plane graph having 5 vertices, 10 edges, and 7 regions.
- (e) a planar graph of order n>=3 and size m with m =3n-6.
- (f) a nonplanar graph of order n>=3 and size m with m =3n-6.

9.8

- Whether the graph K4 $\times$ K2 is planar.

10.2

- The chromatic number of
- (a) the Petersen graph; (b) the n-cube Q_n,
- (c) the wheel $W_n \sim= C_n + K_1$.

10.3

- Chromatic number of a tree

10.4

- Prove or disprove
- (a) If a planar graph contains a triangle, then its chromatic number is 3.
- (b) if there is a 4-colorable of a graph G, then X(G) =4.
- (c) if it can be shown that there is no a 3-coloring of a graph G, then X(G) = 4.
- (d) if G is a graph with X(G)<=4, then G is planar.

10.5

- Prove that every graph of order 6 with chromatic number 3 has at most 12 edges.

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