

Name

group row col....

1. There exists a planar graph with 14 vertices, 30 edges and 14 faces.	. . .
2. There exists a planar graph with 17 vertices, 24 edges and 9 faces.	
3. Graph G_2 is planar.	
4. $\chi'(G_2) =$	
5. For every 2-regular graph G $\chi(G) = \chi'(G)$	
6. For every planar graph G $\chi'(G) = \Delta(G)$	
7. For every G with odd number of vertices, $\chi'(G) = \Delta(G) + 1$	

8. Find system of different representatives or show there is no such system.

$|2, 5, 6, 8|1, 4, 6, 8|3, 6, 8|1, 4, 9|2, 3, 7|3, 5, 6, 9|$

9. Is graph G_1 planar? What is $\chi(G_1)$? Give proofs for your answers.

10. Let G be a planar self-dual (i.e. $G \simeq G^*$) graph. Prove that $\delta(G) \leq 4$.

11. Let G be a graph with at least one edge, such that any two vertices of the maximum degree in G are not neighbours. Prove, without Brook's theorem, that $\chi(G) \leq \Delta(G)$.

12. Find maximal flow and minimal cut in the network: