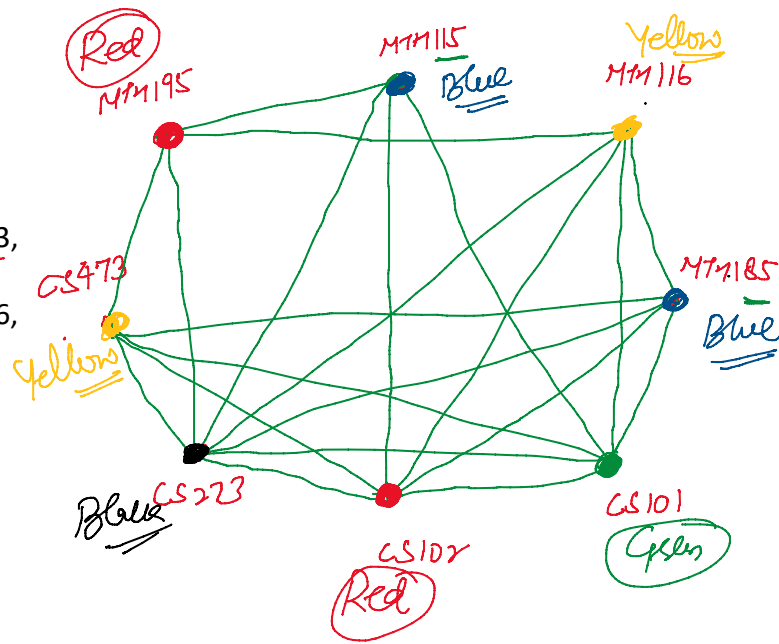


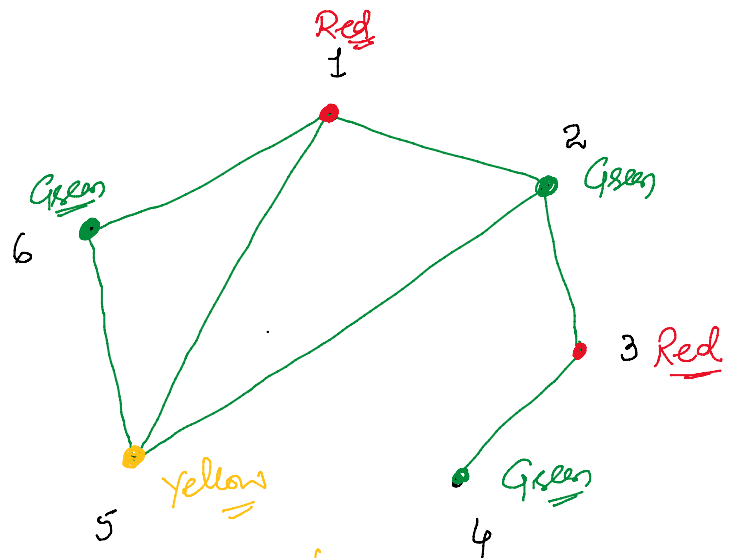
Schedule the final exams for Math 115, Math 116, Math 185, Math 195, CS 101, CS 102, CS 273, and CS 473, using the fewest number of different time slots, if there are no students taking both Math 115 and CS 473, both Math 116 and CS 473, both Math 195 and CS 101, both Math 195 and CS 102, both Math 115 and Math 116, both Math 115 and Math 185, and both Math 185 and Math 195, but there are students in every other pair of courses.



- ① Red: CS 102, MT 195
- ② Black: CS 273
- ③ Green: CS 101
- ④ Blue: MT 185, MT 115
- ⑤ Yellow: MT 116, CS 473

How many different channels are needed for six stations located at the distances shown in the table, if two stations cannot use the same channel when they are within 150 miles of each other?

	1	2	3	4	5	6
1	—	85	175	200	50	100
2	85	—	125	175	100	160
3	175	125	—	100	200	250
4	200	175	100	—	210	220
5	50	100	200	210	—	100
6	100	160	250	220	100	—



1, 3

4, 2, 6

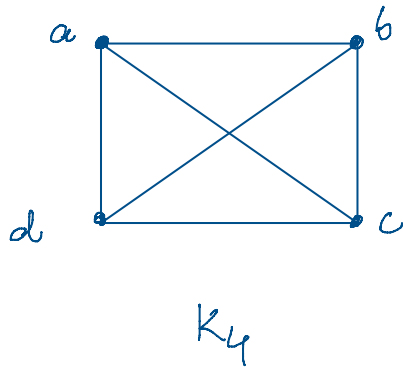
5

Planar Graph

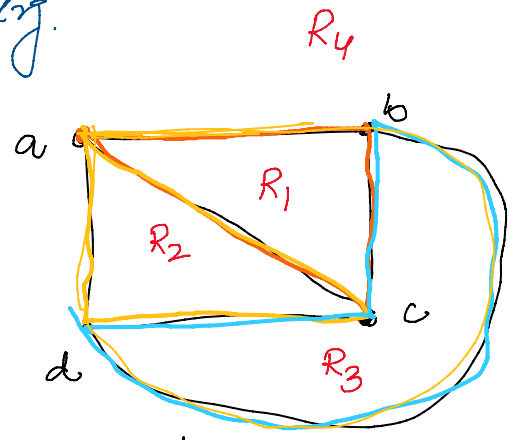
A graph is planar if it can be drawn in the plane without any edge crossing.

R₄

plane without any edge crossing.



planar graph



planar representation of K_4

The planar representation of the graph is called map.

A map divides the whole plane into different parts called regions.