

8 Sept 2014

Math 181

You will turn in the following problems on Wednesday. Problems done as a group need only submit one copy and state the names of all group members.

1. Your High School teachers heard that you took this class and are coming to you for help. You need to schedule the meeting times of all clubs in your High School. Why do they need help with this? Because some students belong to multiple clubs and because the school does not want to be open after school every day.

Clubs	Students
Math	Dayna, Dale, Kristy
Debate	Krist, Dayna, Travis
Science	Dale
Computer	Kristy, Rachel, Travis
Art	Rachel, Dale
Spanish	Dale

2. The Federal Communications Commission (FCC) makes sure that the broadcast from one radio station does not interfere with the broadcast from any other radio station. Assigning an appropriate frequency to each station does this. The FCC requires that stations within transmitting range of each other must use different frequencies. Suppose that the FCC approves a new law where stations within 500 miles of each other must be assigned different frequencies. The locations of seven stations are given below, as well as the distances between them (in miles). Frequency spectrum is limited, so the FCC wants to assign as few frequencies as possible.

	A	B	C	D	E	F	G
A	-	450	550	700	600	850	900
B	450	-	500	300	250	600	750
C	550	500	-	100	530	800	900
D	700	300	100	-	470	650	700
E	600	250	530	470	-	350	490
F	850	600	800	650	350	-	530
G	900	750	900	700	490	530	-

3. From Page 109 in the book, determine the chromatic number of 71) b, e, f and 72) e, g .

Exercises 1–2 are from Smithers, Dayna Brown, “Graph Theory for the Secondary School Classroom.” (2005). *Electronic Theses and Dissertations*. Paper 1015.