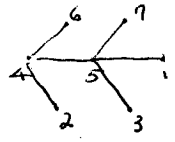
MATH 145 SOLUTIONS – TAN SHEET AND PINK SHEET

TAN – ① A) EACH VERTEX HAS DEGREE 3, SO NO TWO OF THESE EDGES CAN BE INCIDENT TO THE SAME VERTEX.

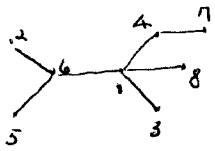
B) IF EVERY VERTEX IS JOINED TO THE OPPOSITE VERTEX, WE WOULD HAVE A 4-CYCLE (SUCH AS 1 6 7 2 1).

C) IF A VERTEX IS NOT JOINED TO THE OPPOSITE VERTEX, IT MUST BE JOINED TO A VERTEX 4 PLACES AWAY SINCE A 3-CYCLE OR 4-CYCLE WOULD BE CREATED IF IT WERE JOINED TO A VERTEX 2 PLACES OR 3 PLACES AWAY.

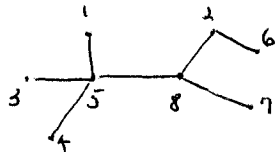
D) IF 1 IS JOINED TO 5, THEN 10 CANNOT BE JOINED TO 2 OR 8 OR 3 OR 7, SINCE THIS WOULD CREATE A 3-CYCLE OR 4-CYCLE; AND IT ALSO CANNOT BE JOINED TO 4 OR 6 SINCE THIS WOULD CREATE A 4-CYCLE.

PINK ① A) 

5 4 5 4 5

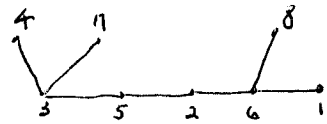
B) 

6 1 6 1 4 1

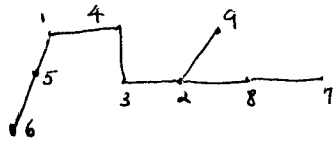
C) 

5 5 5 8 2 8

② A) 6 3 3 5 2 6 → 1 4 7 3 5 2



B) 5 1 4 3 2 8 2 → 6 5 1 4 3 7 8



③ A) KRUSKAL'S ALGORITHM (POSSIBLE ANSWER)

AJ, GM, DE, FM, FE, LK, HJ, KM, CK, BC, JL, IA WEIGHT: 39

B) PRIM'S ALGORITHM – STARTING AT J (POSSIBLE ANSWER)

AJ, JH, HG, GM, FM, FE, ED, GL, LK, KC, BC, AI WEIGHT: 39