

MAT 100 Homework 11 Key

①

1. A Hamilton circuit must touch every vertex once while an Euler circuit is concerned w/ every edge

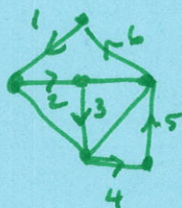
2.



has Hamilton circuit



no circuit or path



Hamilton circuit

3.



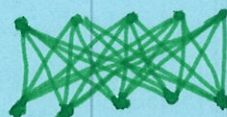
$n=2$



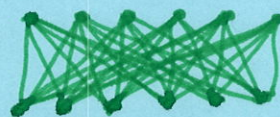
$n=3$



$n=4$



$n=5$



$n=6$

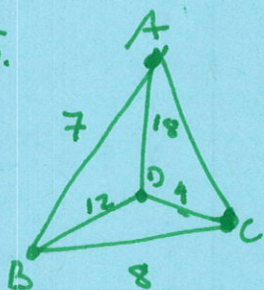


$n=1$

n even has an Euler circuit since all vertices are even
all have a Hamilton circuit ($n > 1$)

4. a. Brute Force - inefficient & optimal
- b. Nearest Neighbor - efficient and approximate
- c. Cheapest Link - efficient and approximate

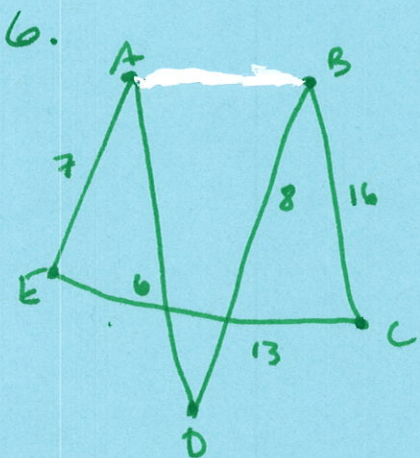
5.



$$ABCDA - 7 + 8 + 4 + 18 = 37$$

$$ACBDA - 10 + 8 + 12 + 18 = 48$$

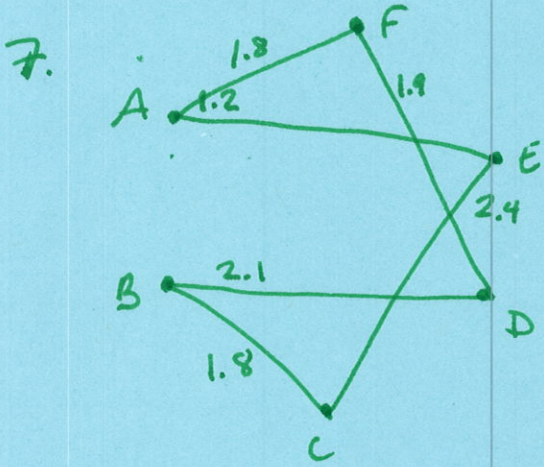
$$ABDCA - 7 + 12 + 4 + 10 = 33$$



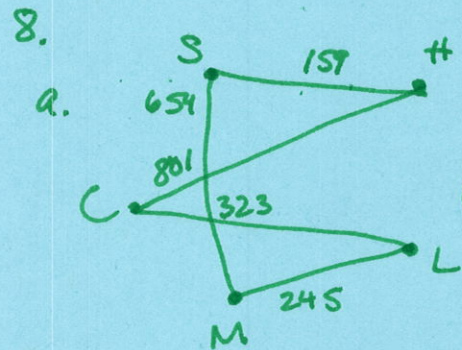
Start at E

$$7 + 6 + 8 + 16 + 13 = 50$$

Starting at another vertex may produce a different result.

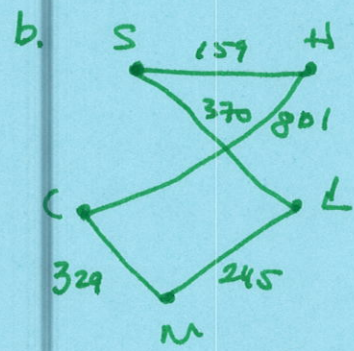


$$1.2 + 1.8 + 1.8 + 1.9 + 2.1 + 2.4 = 11.2$$



$$159 + 801 + 323 + 245 + 654 = 2182$$

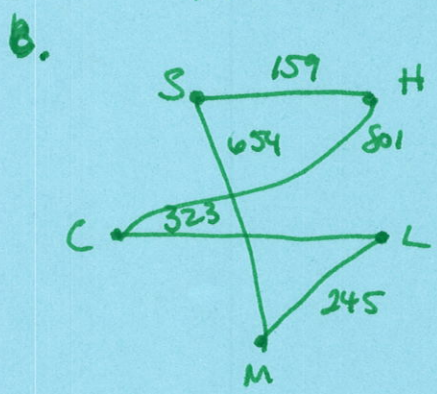
from Seattle



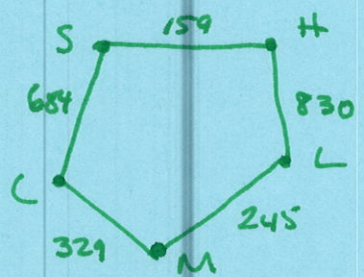
from Honolulu

1904

Same as above

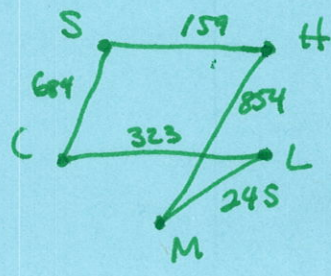


2182



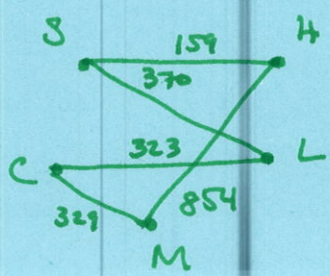
from London

2247



from Moscow

2265



from Cairo

2035