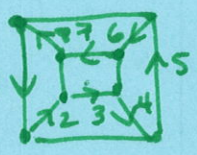
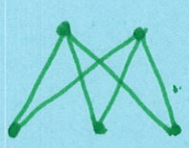
MAT 100 Homework 11 Key

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

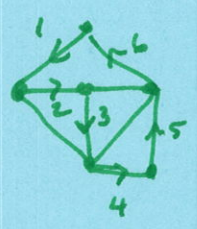
2.



has Hamilton circuit



no circuit or path



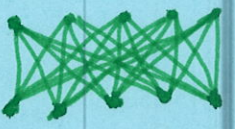
Hamilton circuit

3.

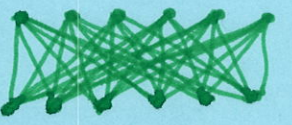
n=2

n=3

n=4



n=5



n=6

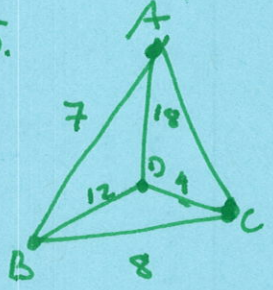
n=1

n ever 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.

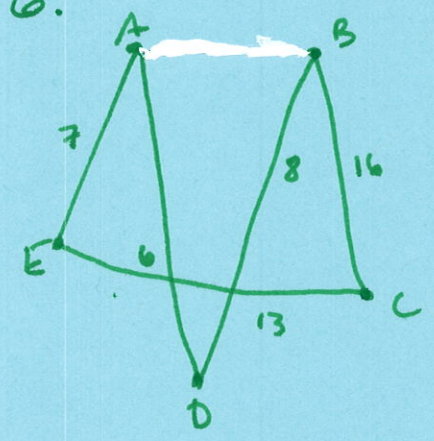


ABCDA - 7 + 8 + 4 + 18 = 37

ACBDA - 10 + 8 + 12 + 18 = 48

ABDCA - 7 + 12 + 4 + 10 = 33

6.

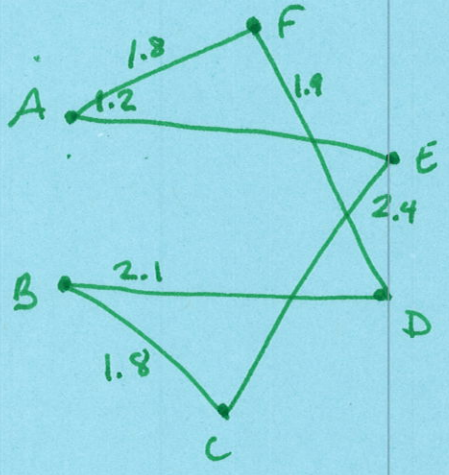


Start at E

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

Starting at another vertex may produce a different result.

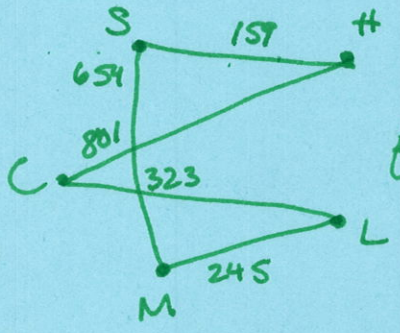
7.



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

8.

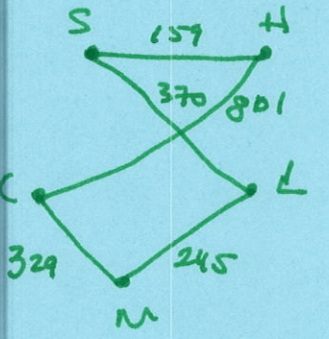
a.



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

from Seattle

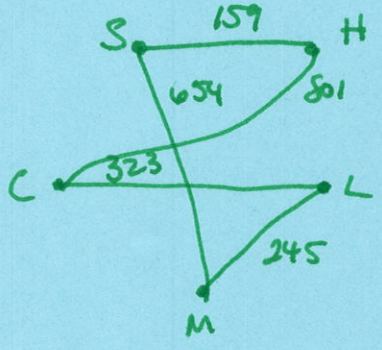
b.



from Honolulu

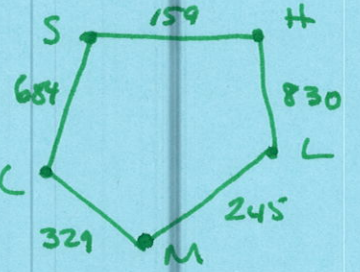
1904

B.



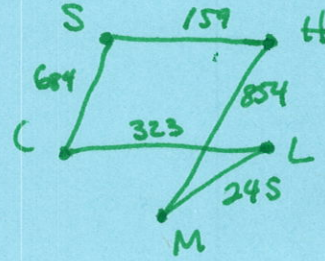
Same as above

2182



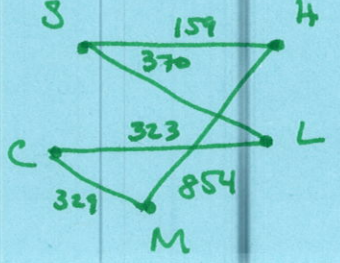
from London

2247



from Moscow

2265



from Cairo

2035

9. A graph is complete when every vertex connects to every other district vertex (every vertex has degree $n-1$).