

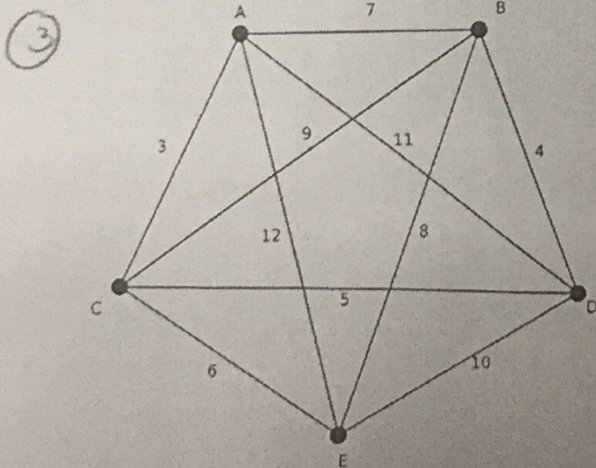
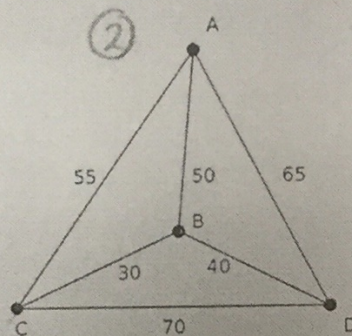
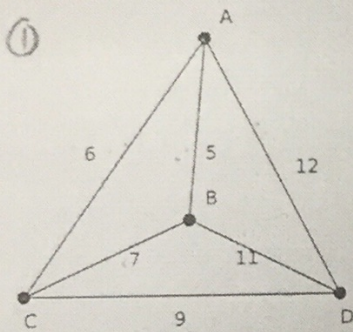
Worksheet 5

Math 181- Fall 2015

In each of the following complete graphs

1. Write down the path and cost you would get by applying the Nearest Neighbor Algorithm for each possible starting vertex.
2. Write down the path and cost you would get by applying the Sorted Edges Algorithm.
3. How many Hamiltonian paths would we have to consider if we used the brute force algorithm/the method of trees?

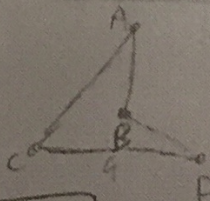
$(n-1)!$
 $(n-1)!$
 $\frac{\quad}{2}$



①
 A-B-C-D-A
 $5 + 7 + 9 + 12 = 33$
 B-A-C-D-A
 $5 + 6 + 9 + 12 = 32$
 C-A-B-D-C
 $6 + 5 + 11 + 9 = 31$
 D-C-A-B-D
 $9 + 6 + 5 + 11 = 31$

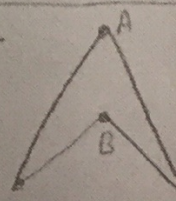
②
 A-B-C-D-A
 $50 + 30 + 70 + 65 = 215$
 B-C-A-D-B
 $30 + 55 + 65 + 40 = 190$
 C-B-D-A-C
 $30 + 40 + 65 + 55 = 190$
 D-B-C-A-D
 $40 + 30 + 55 + 65 = 190$

SE
 AB=3 ✓
 AC=6 ✓
 BC=7 ✗
 CD=9 ✓
 BD=11 ✓
 AD=12 ✗



SE=31

SE
 BC=30 ✓
 BD=40 ✓
 AB=50 ✗
 AC=55 ✓
 AD=65 ✓
 CD=70 ✗



190 = 30 + 40 + 55 + 65

$(n-1)!$
 $(4-1)!$
 $3! = 6$
 total

$\frac{6}{2} = 3$
 distinct

$(n-1)!$
 [Blacked out content]