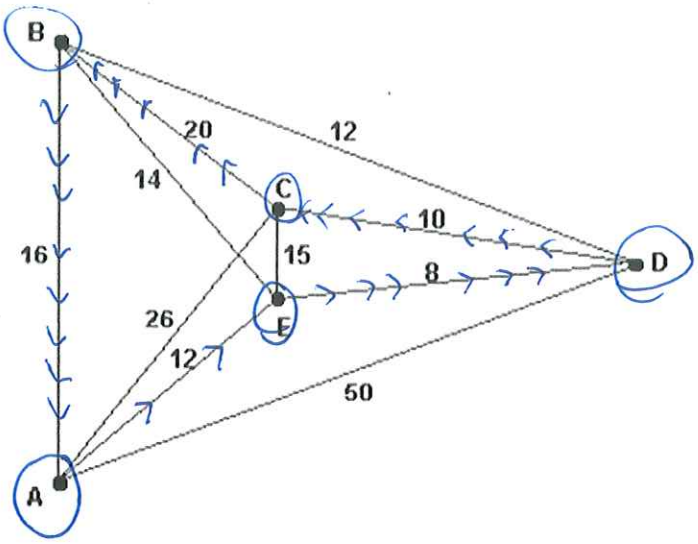
7. For the graph below, find the Hamiltonian circuit obtained by using the nearest-neighbor algorithm, starting at A. What is the cost if the numbers shown represent the distance in miles?

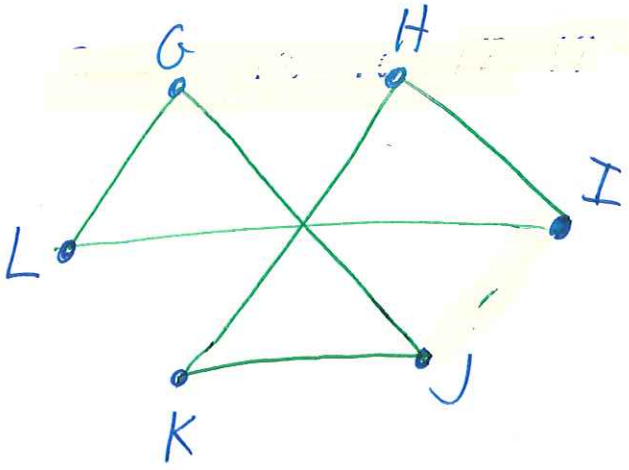


A $\xrightarrow{12}$ E $\xrightarrow{8}$ D $\xrightarrow{10}$ C $\xrightarrow{20}$ B $\xrightarrow{16}$ A

66 miles

8. The chart below shows the travel time between cities in hours. Use the sorted edges method to find a good solution to the TSP.

	G	H	I	J	K	L
G	0	16	21	13	32	9
H	16	0	19	29	37	20
I	21	19	0	47	27	8
J	13	29	47	0	23	17
K	32	37	27	23	0	22
L	9	20	8	17	22	0



8 ✓ 9 ✓ 13 ✓ 16 ✓ 17 ✓ 19 ✓ 21 ✓ 22 ✓ 23 ✓ 27 ✓ 29 ✓ 30 ✓ 32 ✓ 37 ✓ 47

3 edges at G

3 edges at L

3 edges at I & G

3 edges at L

3 edges at I

3 edges at J

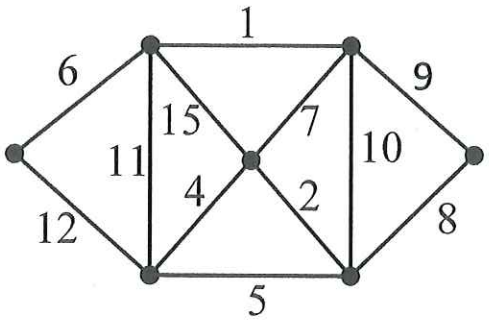
3 edges at L

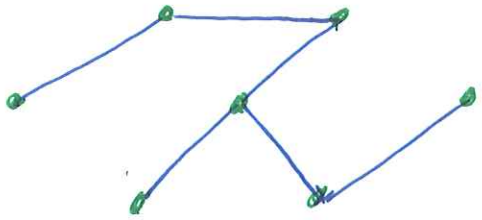
3 edges at G

109 hr

w/ LGJKHIL and others

9. Apply Kruskal's algorithm to create a minimum cost spanning tree from the given graph. The edges show the time between vertices in seconds. What is the total time?





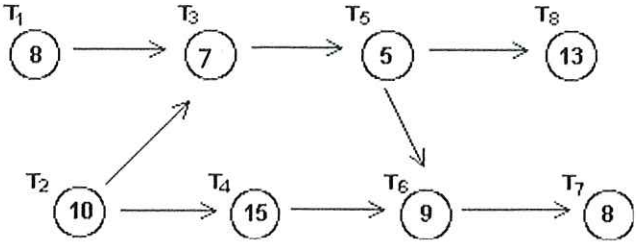
1 2 4 5 6 7 8 9 10 11 12 15

✓ ✓ ✓ ↑ ✓ ✓ ✓

Circuit

28 seconds

10. What is the critical path for the digraph below? The time for each task is given in minutes. What is the earliest completion time for these tasks?



$T_1\ T_3\ T_5\ T_8$ 33min

$T_1\ T_3\ T_5\ T_6\ T_7$ 37min

$T_2\ T_4\ T_6\ T_7$ 42min

$T_2\ T_3\ T_5\ T_8$ 35min

$T_2\ T_3\ T_5\ T_6\ T_7$ 39min

Critical Path is $T_2\ T_4\ T_6\ T_7$

Earliest time for completion is 42 min