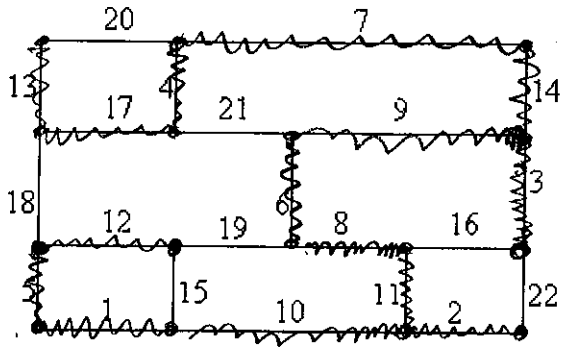
Name Key

CW Day 11

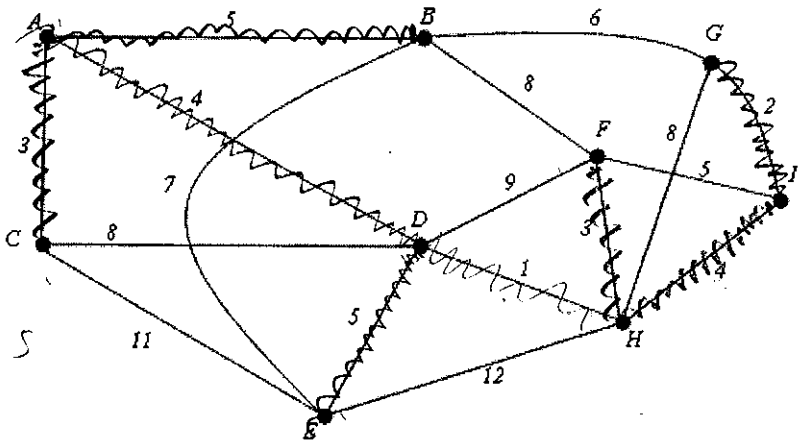
1. The minimum cost spanning tree found using Kruskal's algorithm for the following graph has a cost of____.



16 · 1 = (15)

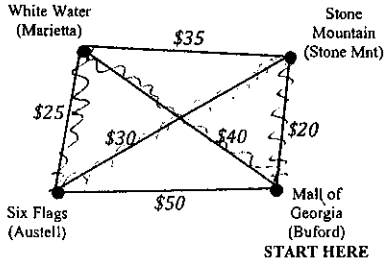
1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 17 = 108

2. Create a minimum spanning tree using the Kruskal's algorithm. What is the total minimum ~~length~~ of the spanning tree? 27



1 + 2 + 3 + 3 + 4 + 4 + 5 + 5

3. Using the "Nearest Neighbor Algorithm", determine a possible cheapest Hamiltonian Circuit starting from the "Mall of Georgia". Also use sorted edges to determine a possible cheapest Hamiltonian Circuit.

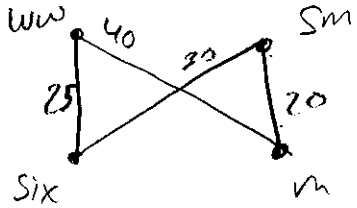


NN

20 + 30 + 25 + 40 = (115)

Mall of Georgia – Stone Mt – Six Flags – WW – Mall of Georgia

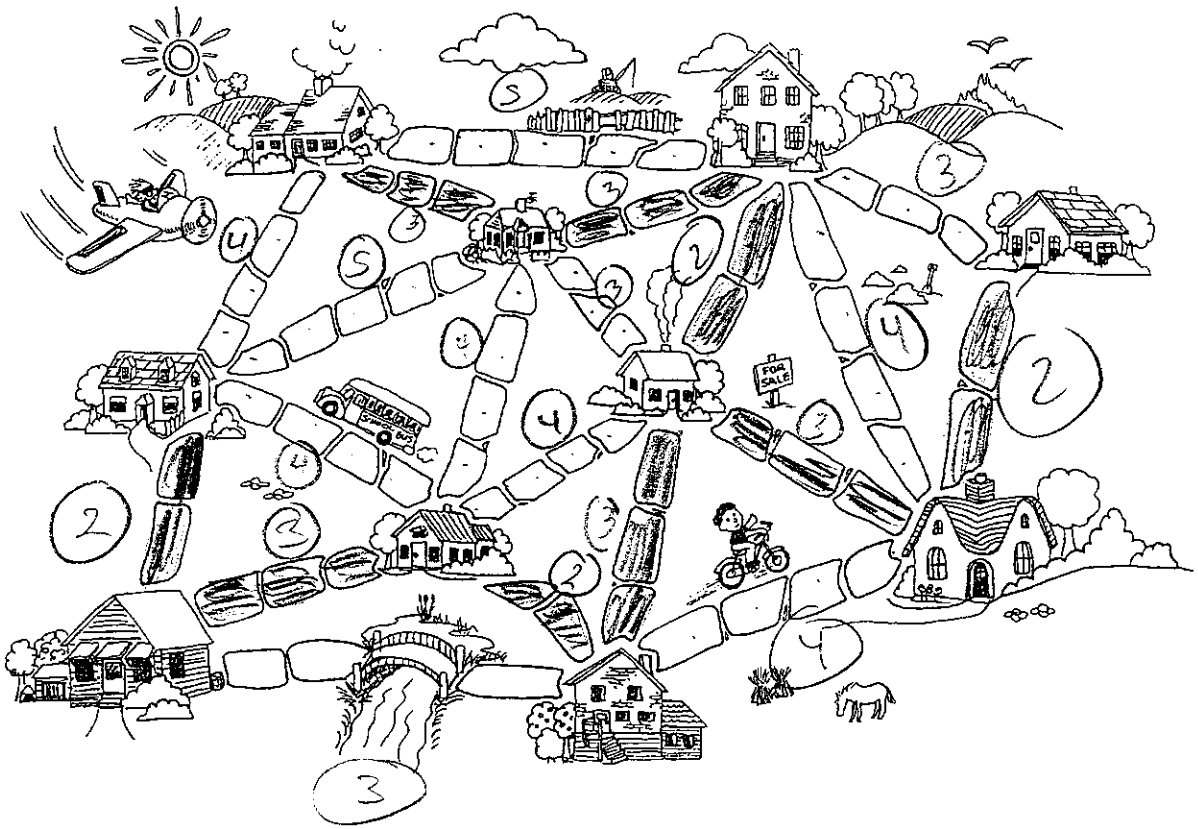
SE



M – SM – SF – WW – M

20 + 30 + 25 + 40 = 115

Once upon a time there was a city that had no roads. Getting around the city was particularly difficult after rainstorms because the ground became very muddy—cars got stuck in the mud and people got their boots dirty. The mayor of the city decided that some of the streets must be paved, but didn't want to spend more money than necessary because the city also wanted to build a swimming pool. The mayor therefore specified two conditions: (1) Enough streets must be paved so that it was possible for everyone to travel from their house to anyone else's house by a route consisting only of paved roads, possibly via other houses, and (2) the paving should be accomplished at a minimum total cost.



2+2 +2+2+3+3+3+3+3 = 23

Instructions: *Find the minimum number of paving stones that need to be used so that you can get from any house to any other house. (The bridge doesn't need to be paved.)*