1. This is a 2-player game tree with leaf scores for MAX.
   (i) If root is a MAX node, give minimax values for MAX.
   (ii) If root is a MIN node, give minimax values for MAX.

   A B C D E F G H I J K
   (i) ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
   (ii) ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

2. Below are road distances. Heuristic gives straight-line distances to Z. A* finds a path from T to Z. Show the next step: fill in cost and priority blanks and update finished.

3. 15puzzle.py runs on the same 4x4 puzzle, with subgoal parameter shown below. For run 1, the number of nodes will probably be (circle one) (between less than more than) that of runs 2 and 3 because, usually, (circle ALL that apply)

   a) increasing the number of stages allows a faster search of the complete state space
   b) a shorter first stage takes less time and leads to a final solution with more moves
   c) a shorter first stage takes more time and leads to a final solution with fewer nodes
   d) increasing the number of stages increases the number of nodes

   run 1: -s [[1 2] [3 4] [5 6] [7 8] [9 .. 15]] 82 moves ? nodes
   run 2: -s [[1] [2] [3 4] [5] [6] [7 8] [9 .. 15]] 78 moves 14741 nodes
   run 3: -s [[1 .. 4] [5 .. 8] [9 .. 15]] 62 moves 118300 nodes