The Penniless Pilgrim Riddle:

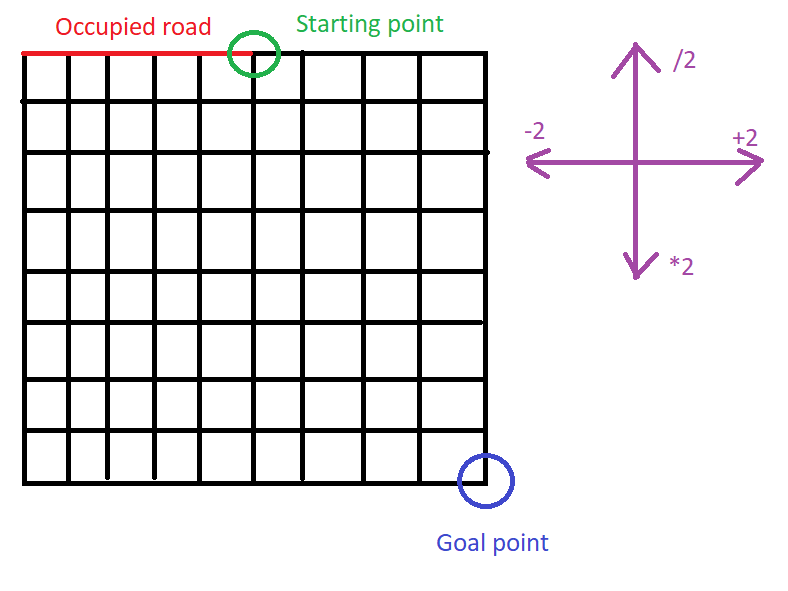
After months of travel, you’ve arrived at Duonia, home to the famous temple that’s the destination of your pilgrimage. The walk from the welcome center to the temple is only 5 blocks walking away, and you were handed the brochure about the city rules. This city is… unique, in that:

There’s a strange tax: The tax begins at 0, increases by 2 silvers for every block you walk east, doubles for every block you walk south. A walk west-bound or north-bound will however decreases it by 2 and by half, respectively.

The city’s rule, as per the temple’s religion, also forbids you treading back any path you’ve walked, but crossing is exemplified.

You just realized you did not bring any Silver at all. Even worse, arriving at the welcome center already sets you back 10 Silvers. As a pilgrim, you do not want to enter citizen’s blocks, nor break any rules.

How would you reach the temple without paying any tax?



STATE:

INITIAL STATE: (0, 5), 10

ACTION: {L, R, U, D}

GOAL: (10, 10), <= 0

PATH COST: (L, -2), (R, +2), (U, /2), (D, \*2) 🡪 Cost

OUTPUT

• Time complexity (number of nodes expanded in order to solve the puzzle)

• Space complexity (number of nodes kept in memory)

• The sequence of moves from the starting position to the temple and the remaining silver “owed”.