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 isn't a long one ... but there’s a problem:

The city imposes a unique tax: The tax begins at 0, increases by 2 silvers by every block you walk east, doubles by every block you walk south. A walk west-bound or north-bound will however decreases by 2 and by half, respectively.

You will start from the very north-west corner of Duonia, and you must walk to the welcome center 5 blocks to the east. You already owe the city 10 silvers. Now, you need to reach the infamous temple, located at the south-east corner. You bring no silver at all. 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”.