CS441 – Artificial Intelligence

Project Topic:

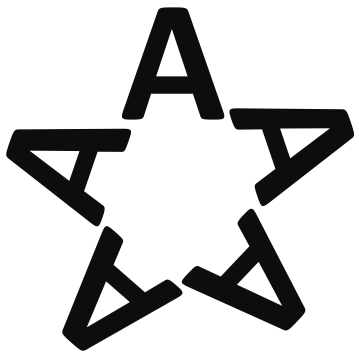
Implementation of
A search Algorithm* and *Dijkstra's Algorithm*

Content

1. Introduction

- *A* Search Algorithm*
- *Dijkstra's Algorithm*

1. Introduction (*A* Search*)



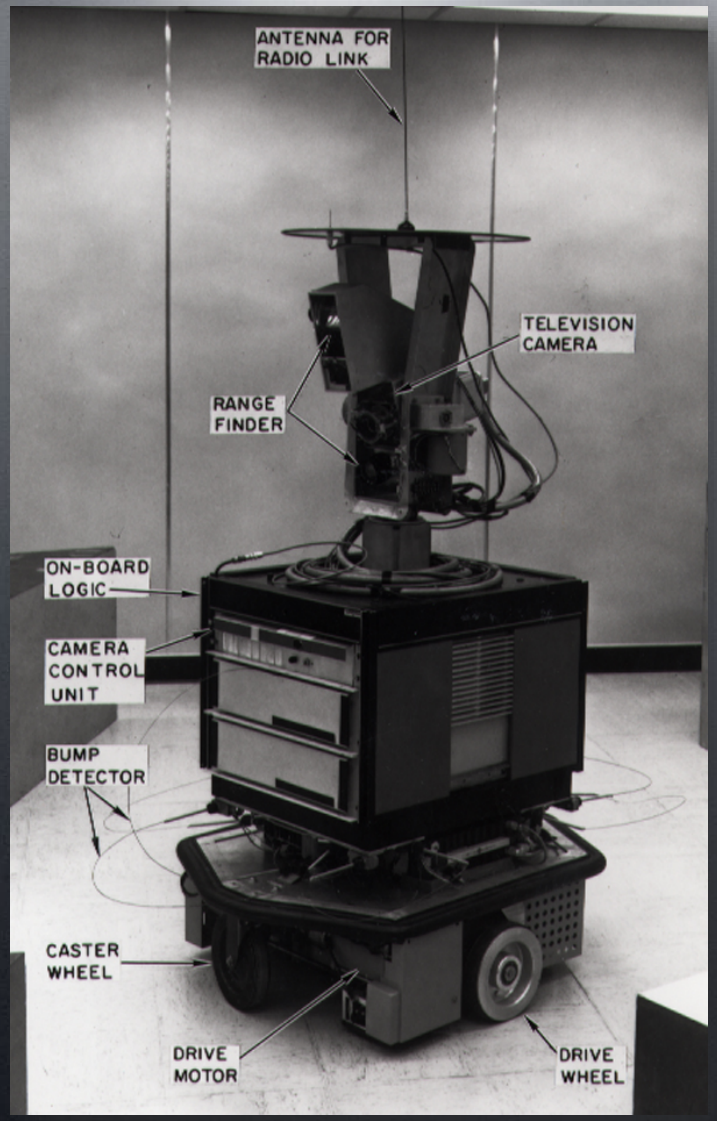
- Best-first search
- Admissibility
- Minimizes

$$f(n) = g(n) + h(n)$$

$h(n)$ → heuristic function

$g(n)$ → cost of the path from start node

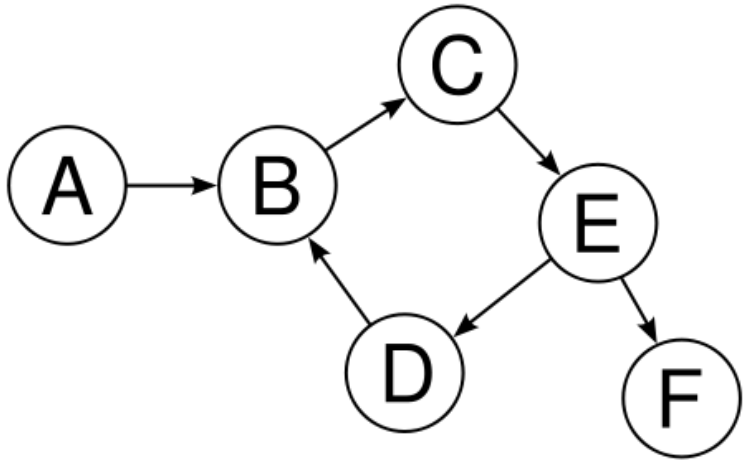
$h(n) \leq h^*(n)$ → is the optimal cost



Shakey project - 1972

1. Introduction (*Dijsktra's Algorithm*)

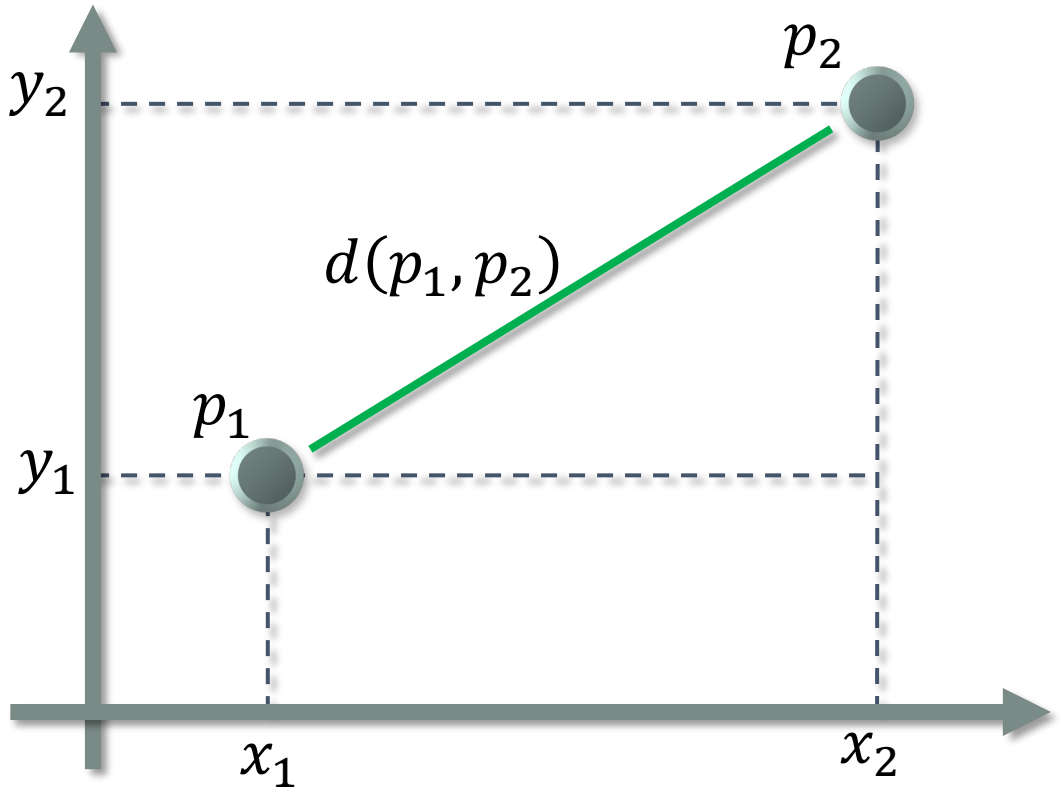
- Step-by-step process



3.1 Euclidean Distance

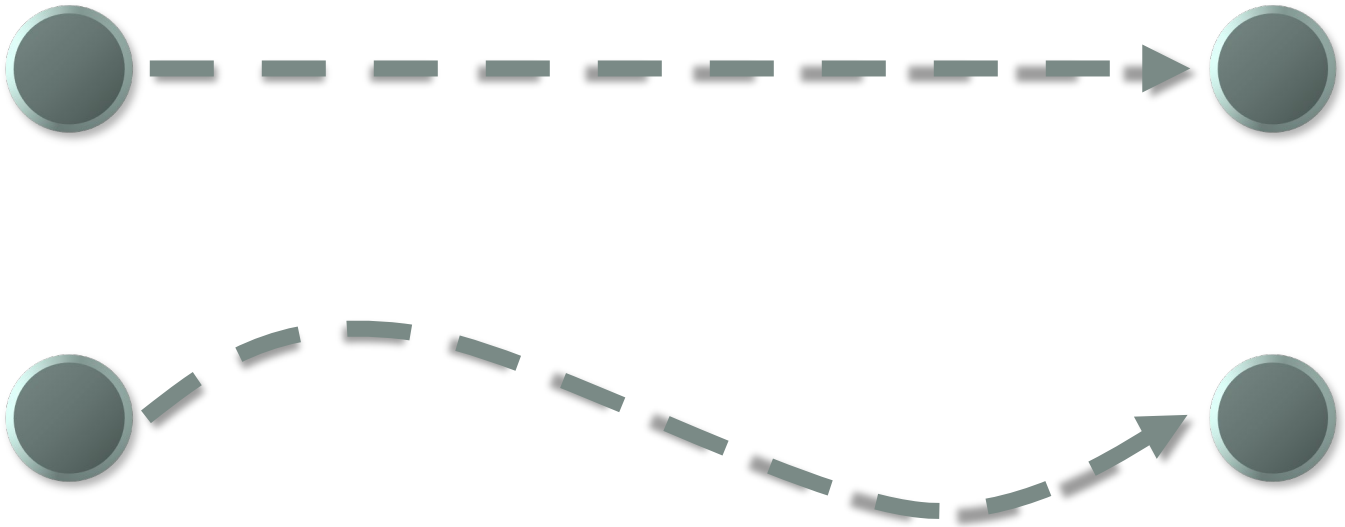
$$d(p_1, p_2) = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

Formula: Euclidean Distance



3.1 Euclidean Distance in Heuristic

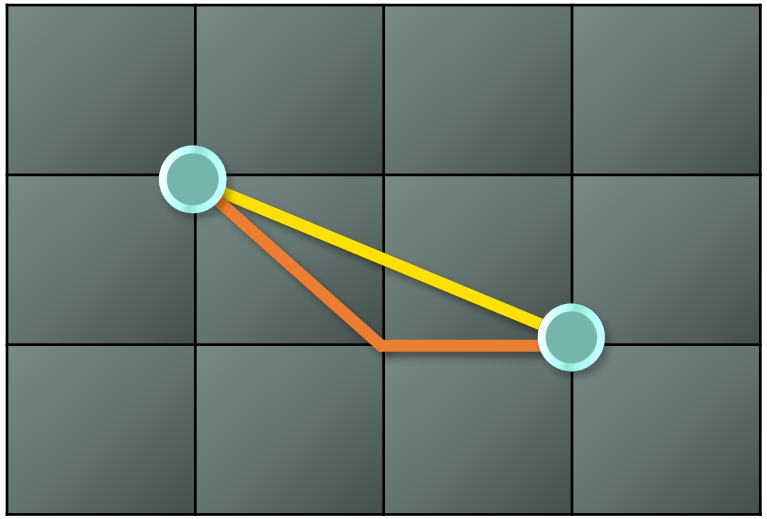
A* Search Algorithm

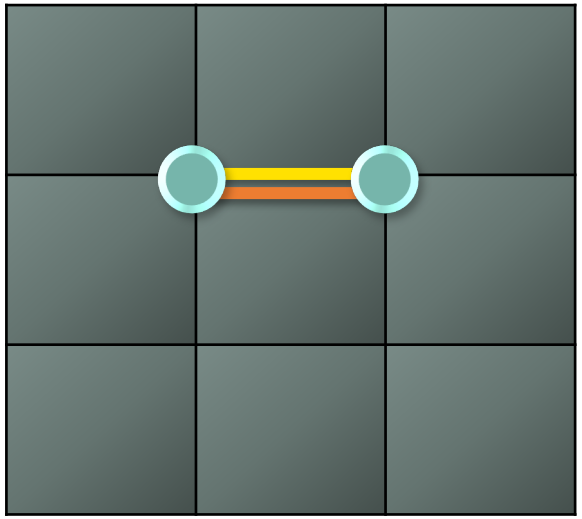


The shortest

3.1 Euclidean Distance in Heuristic

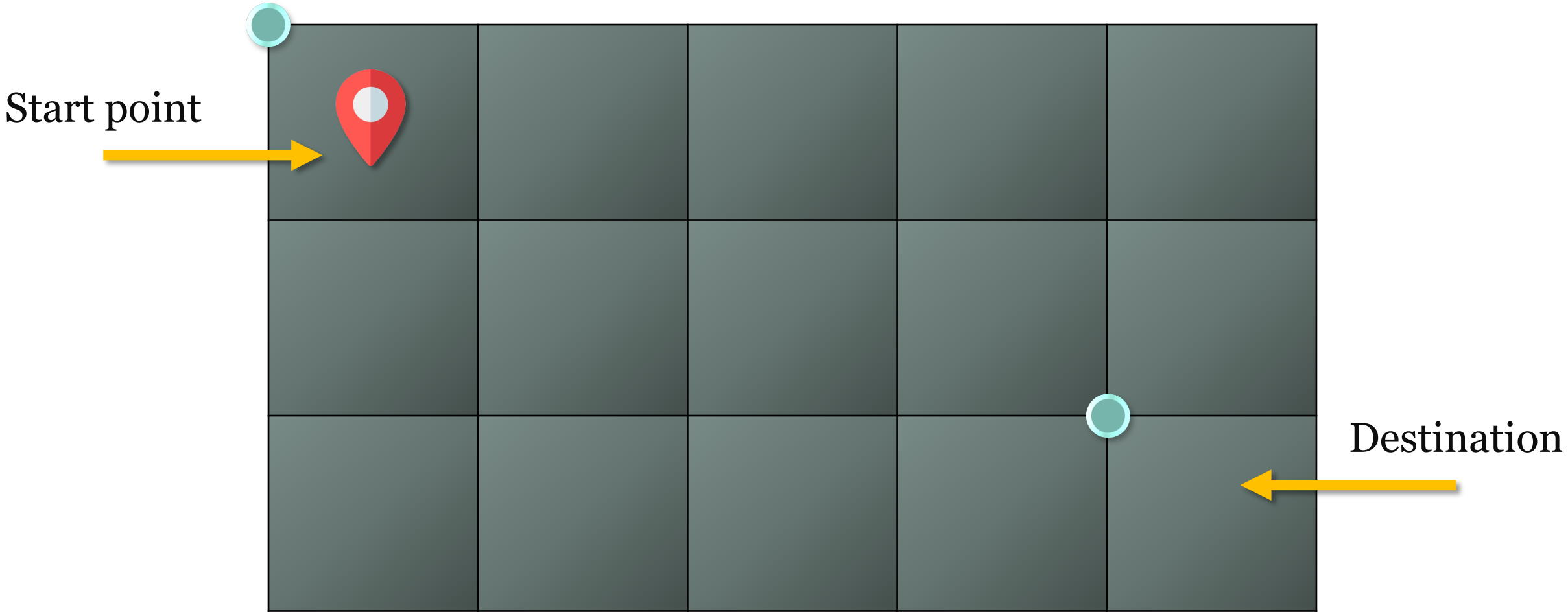
A* Search Algorithm





No over estimation

A* Search Algorithm



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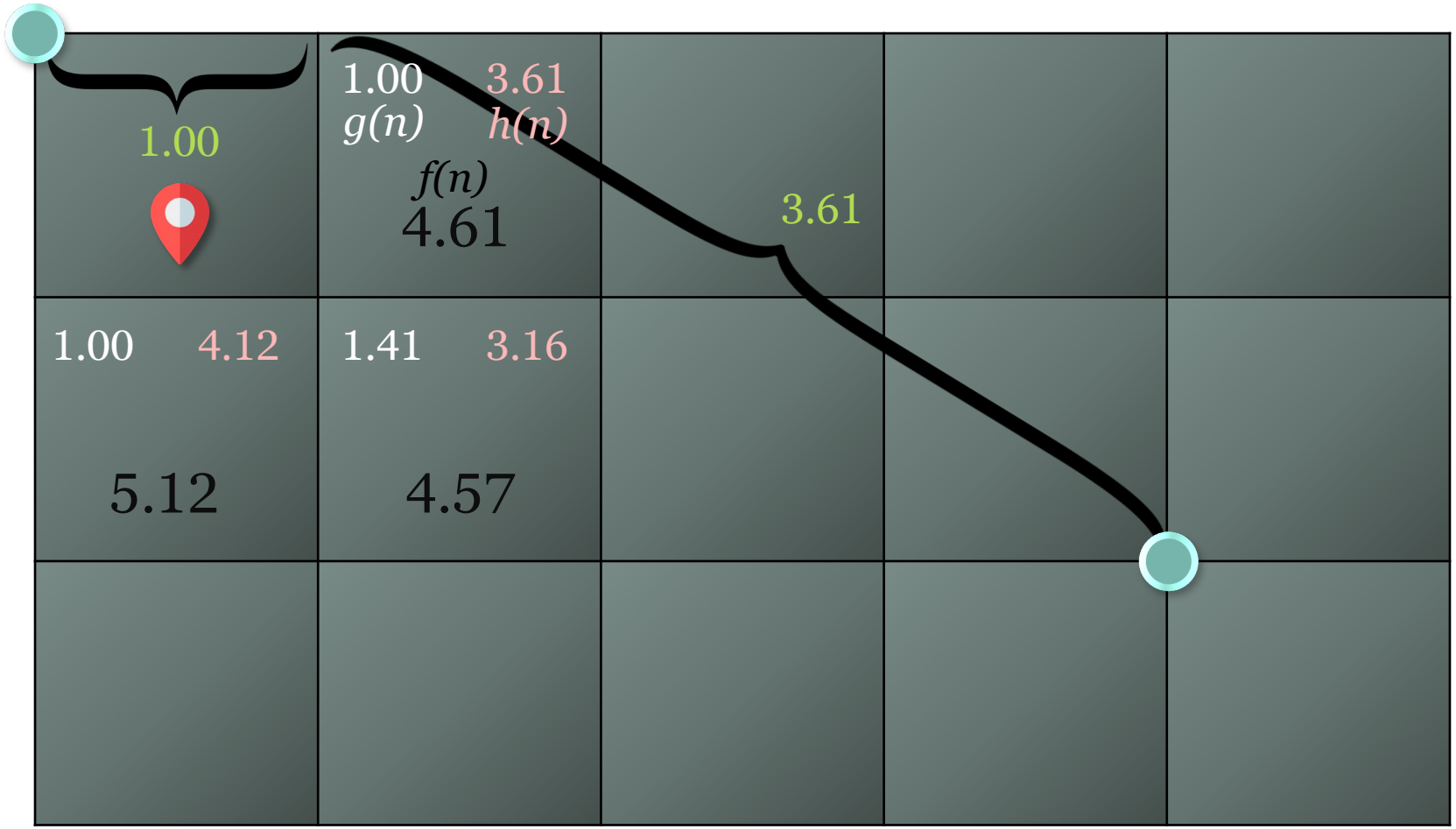

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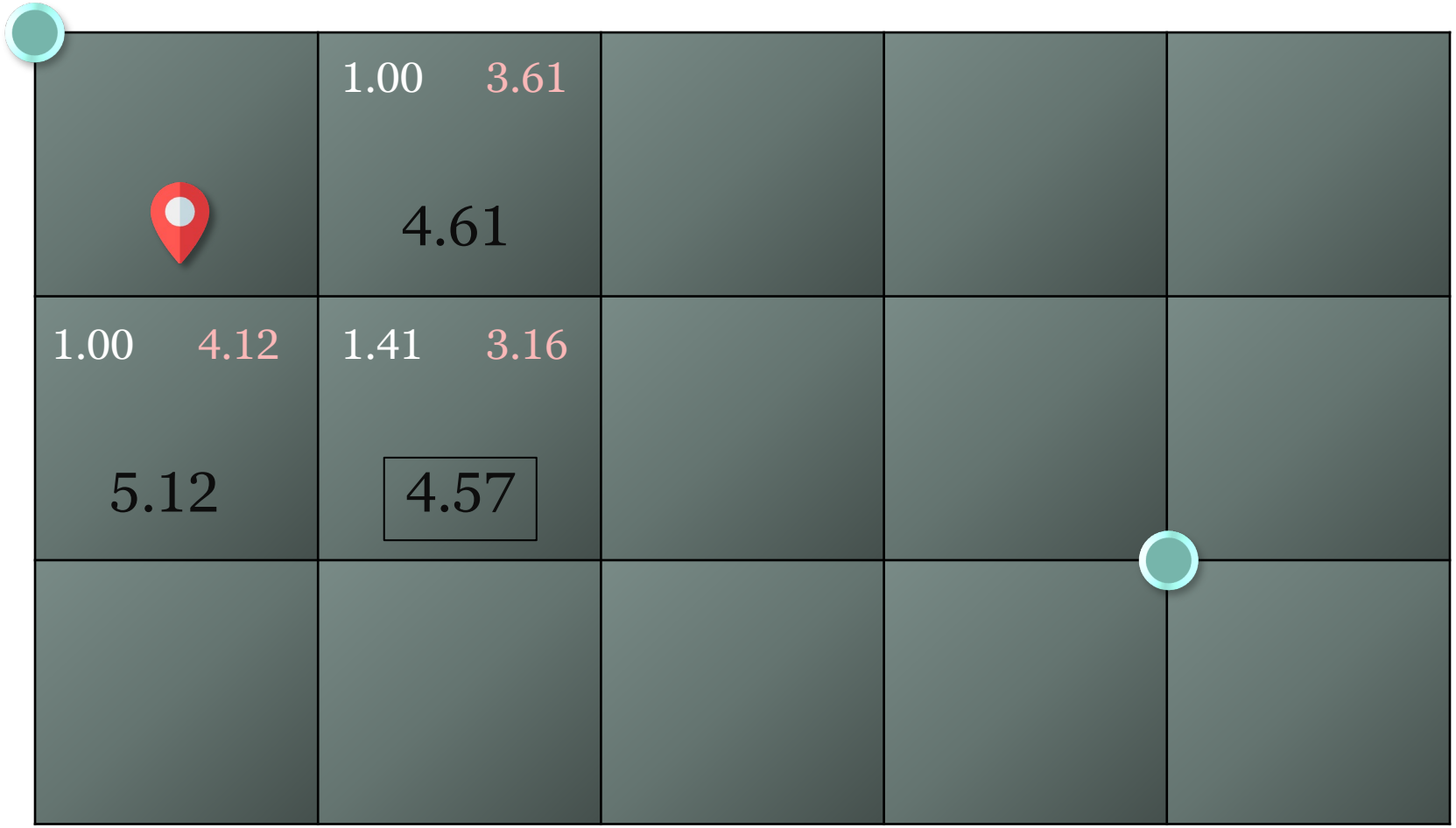

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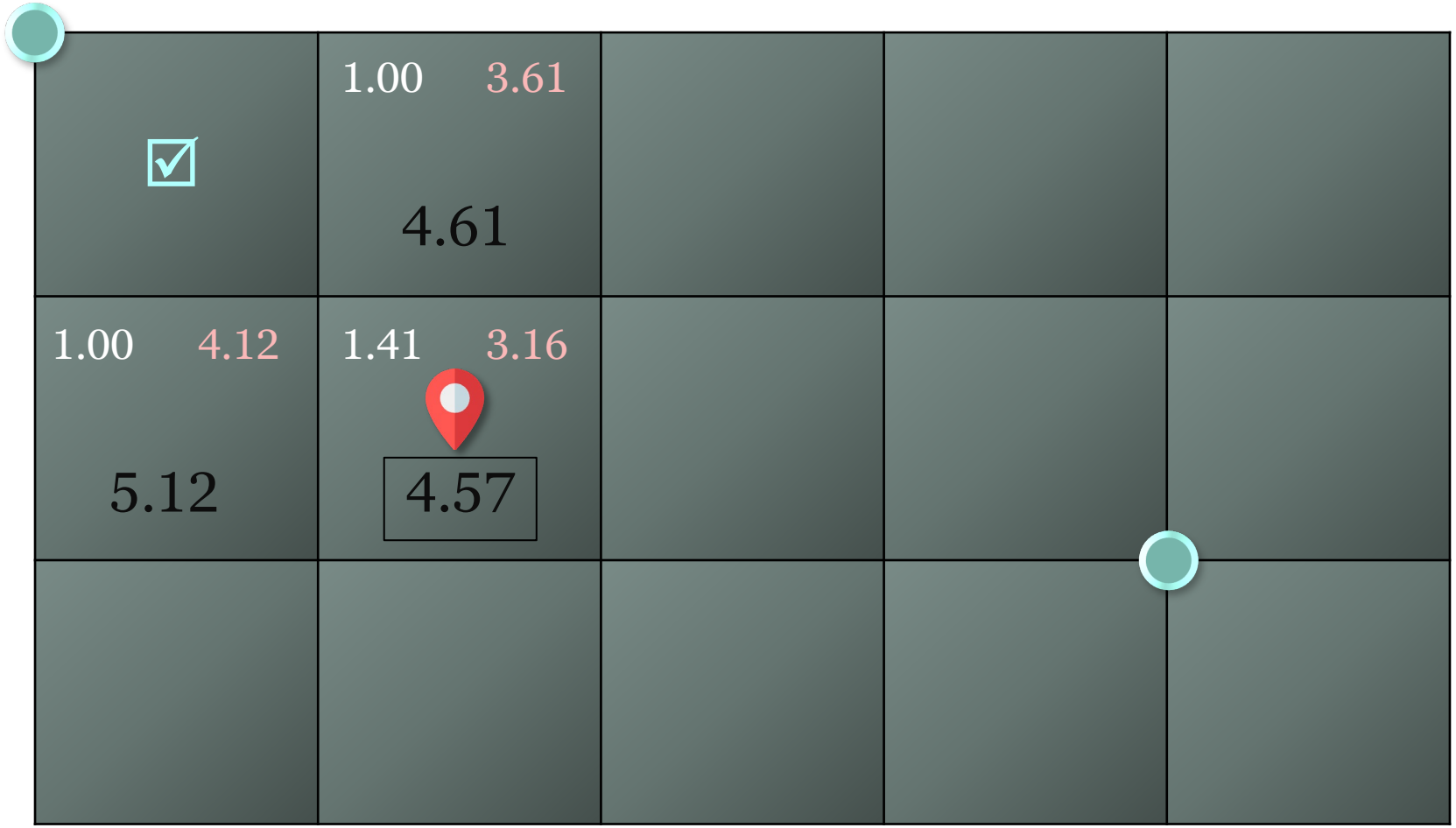

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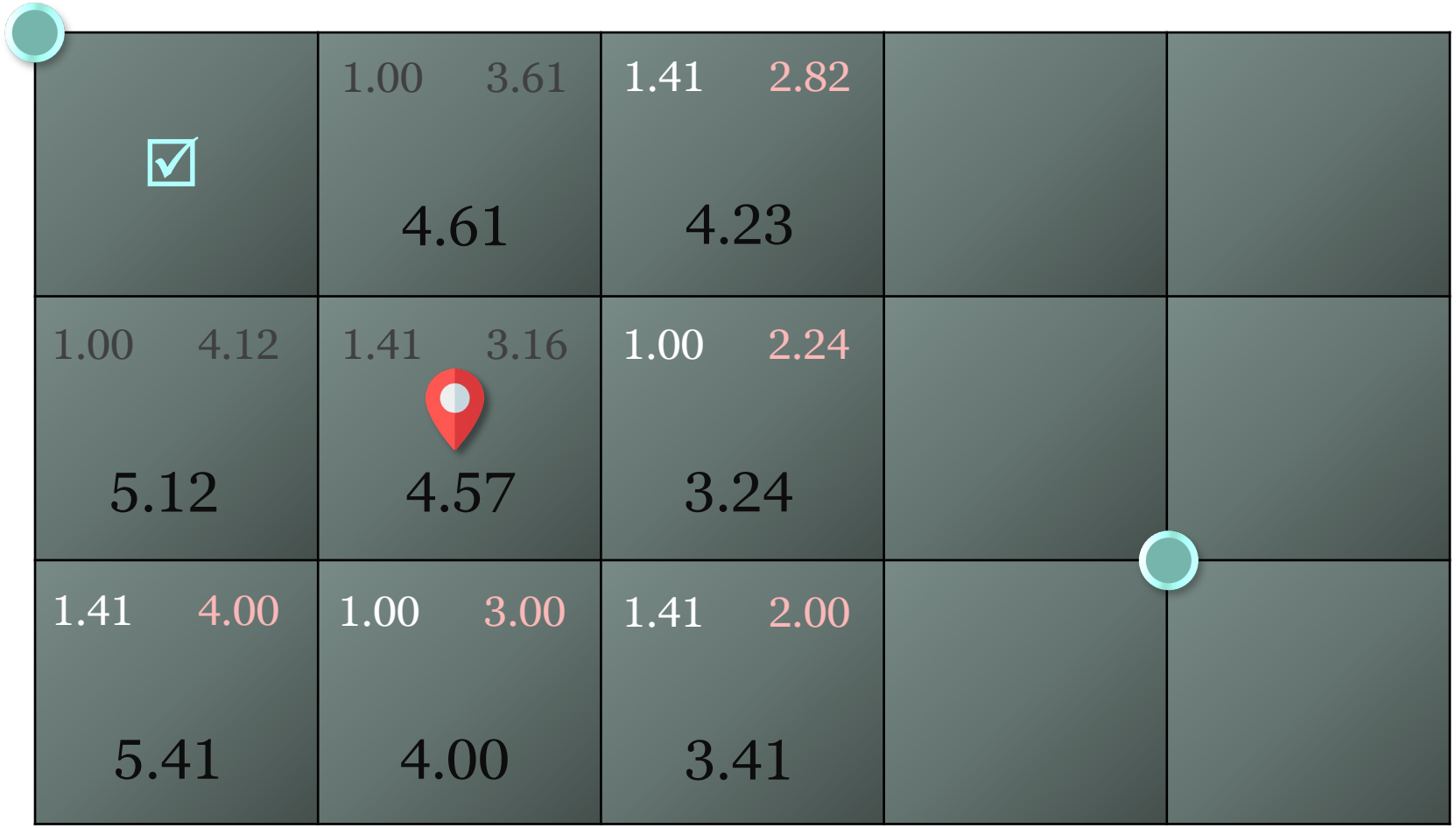

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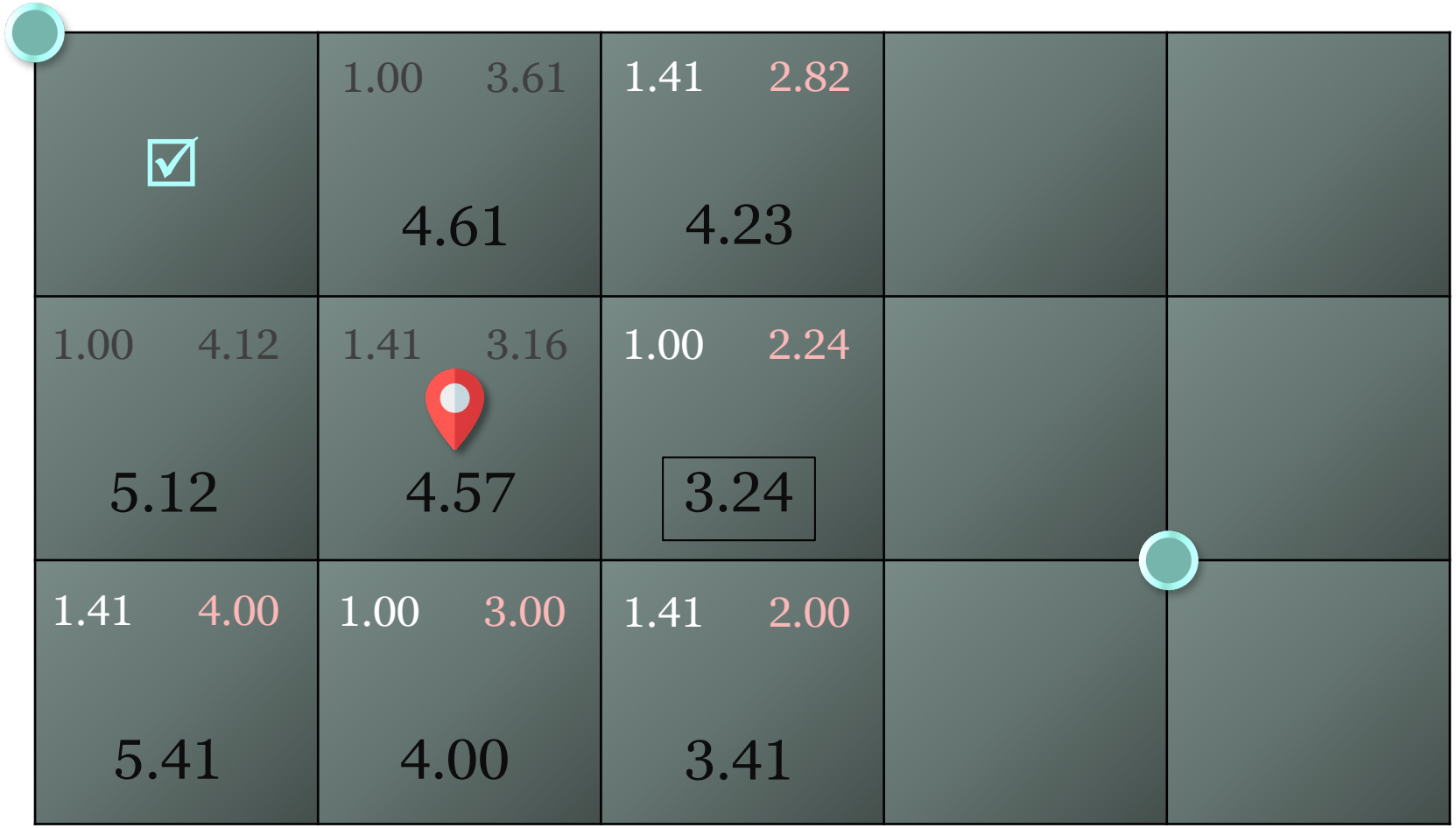

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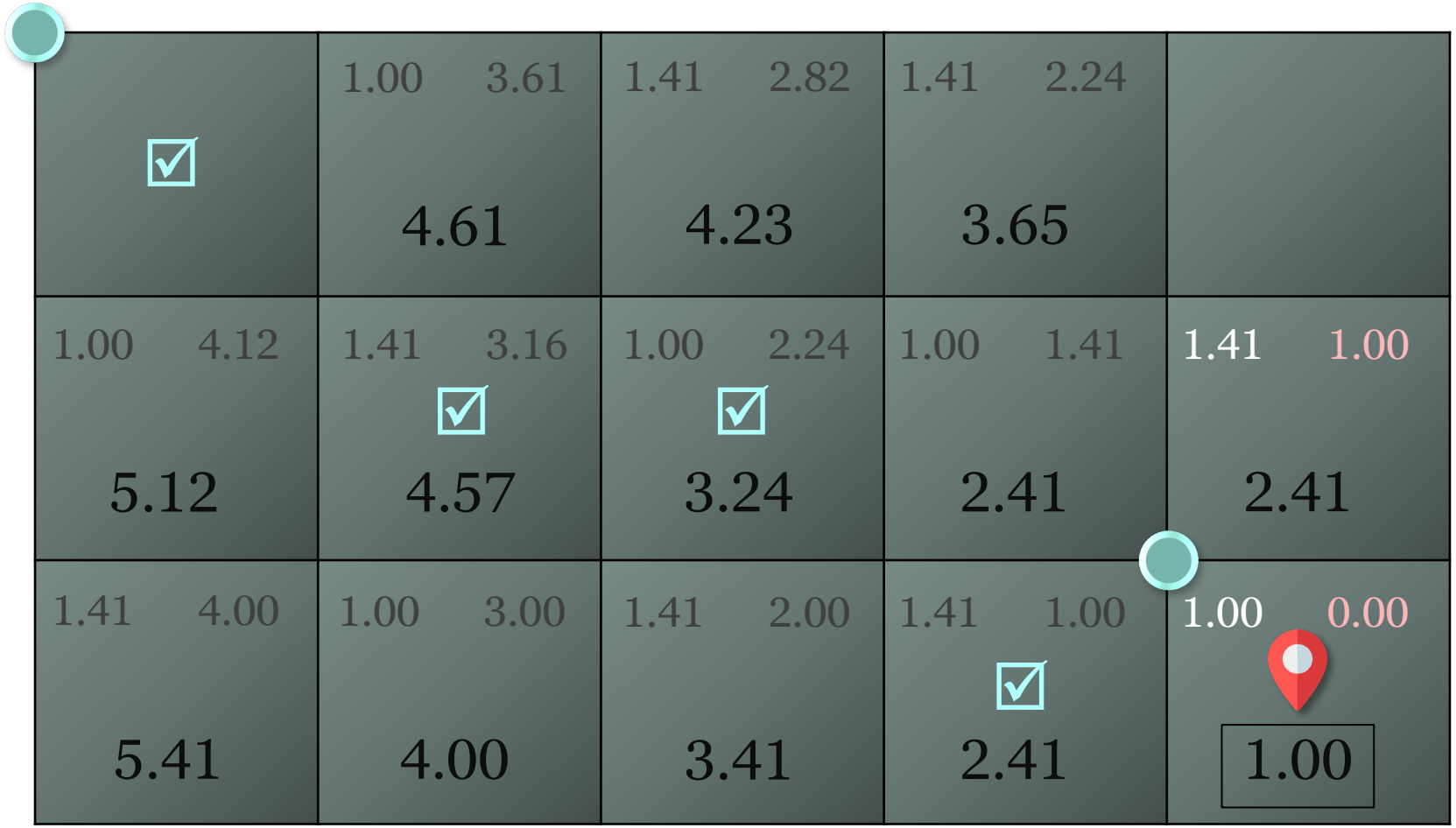
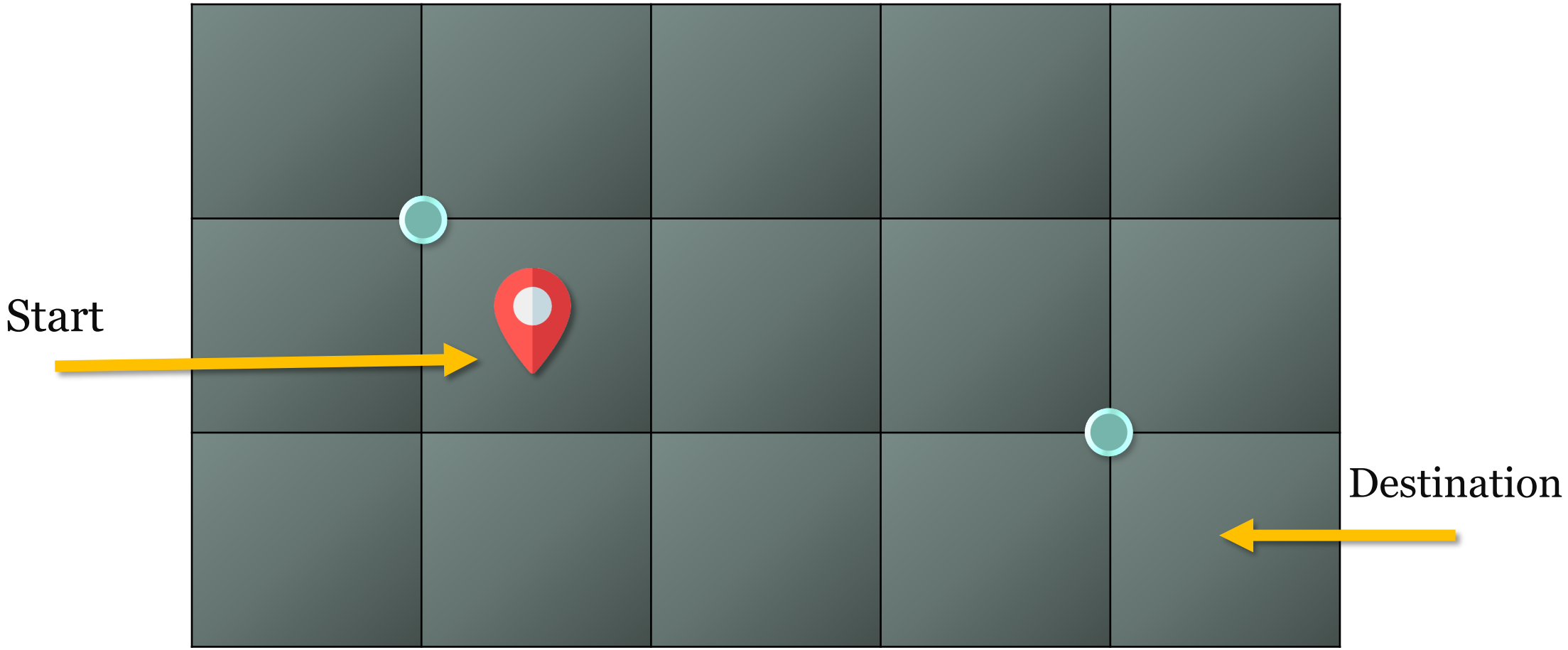


The end…

Dijkstra's algorithm



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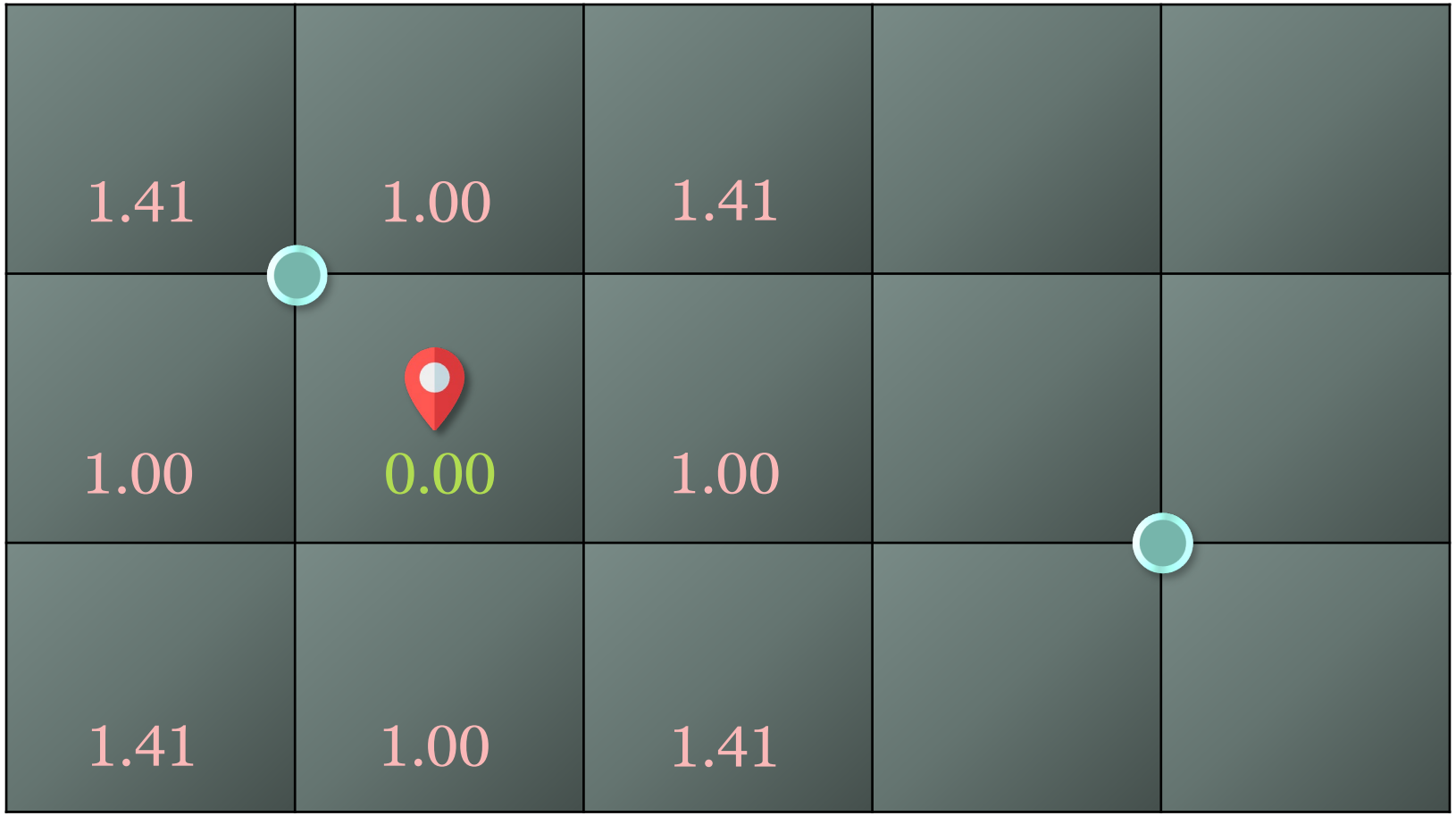

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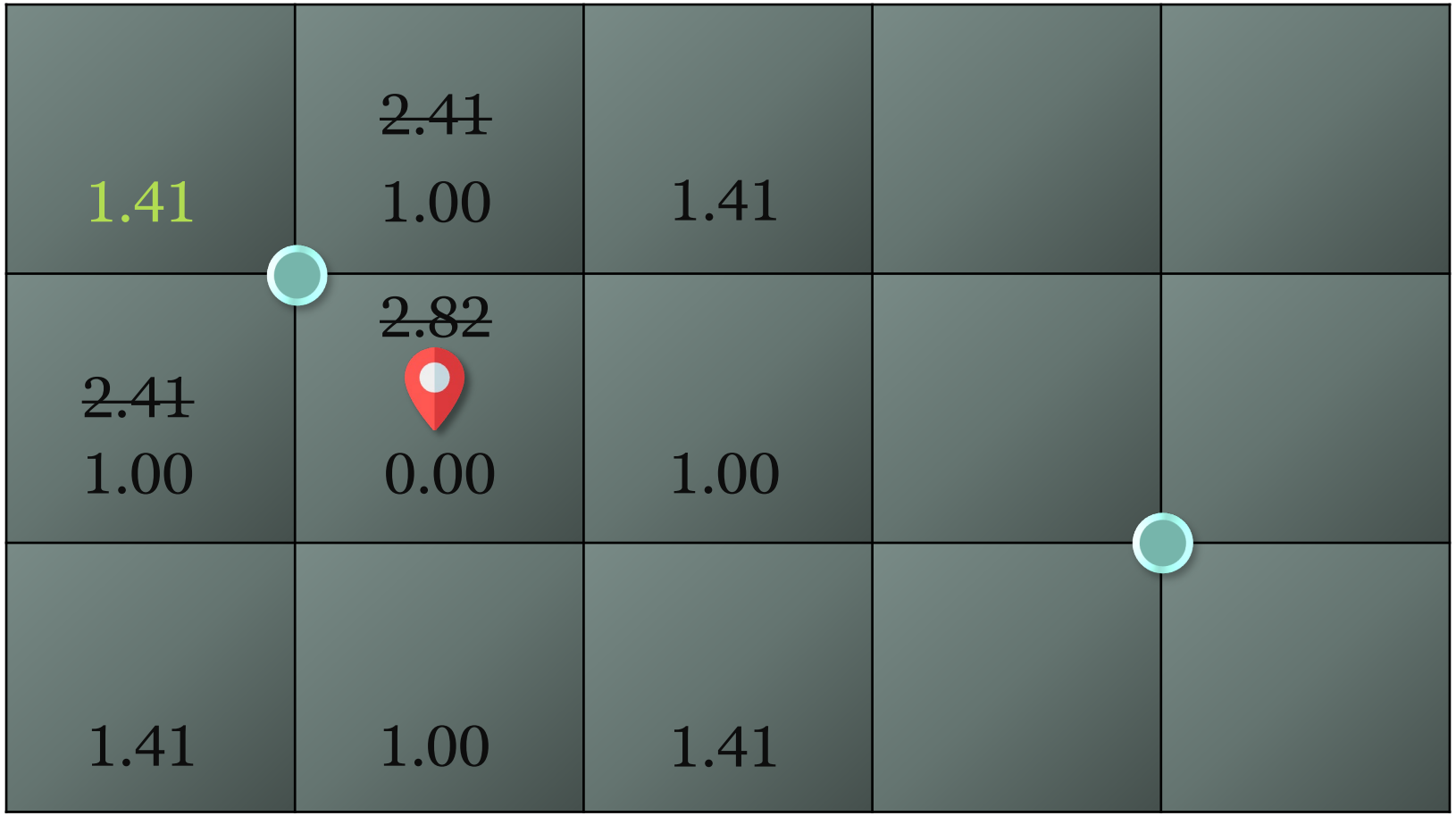

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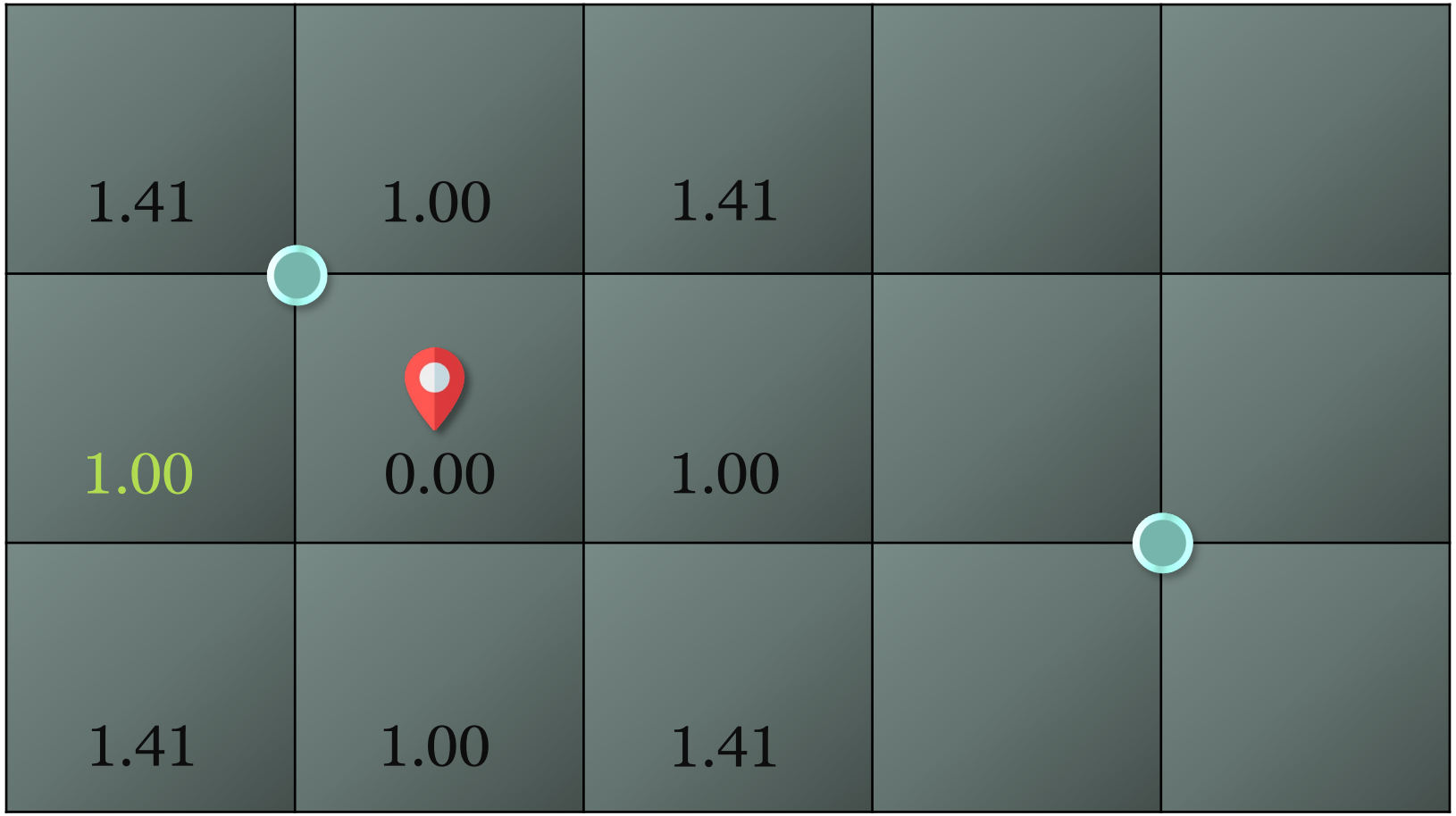

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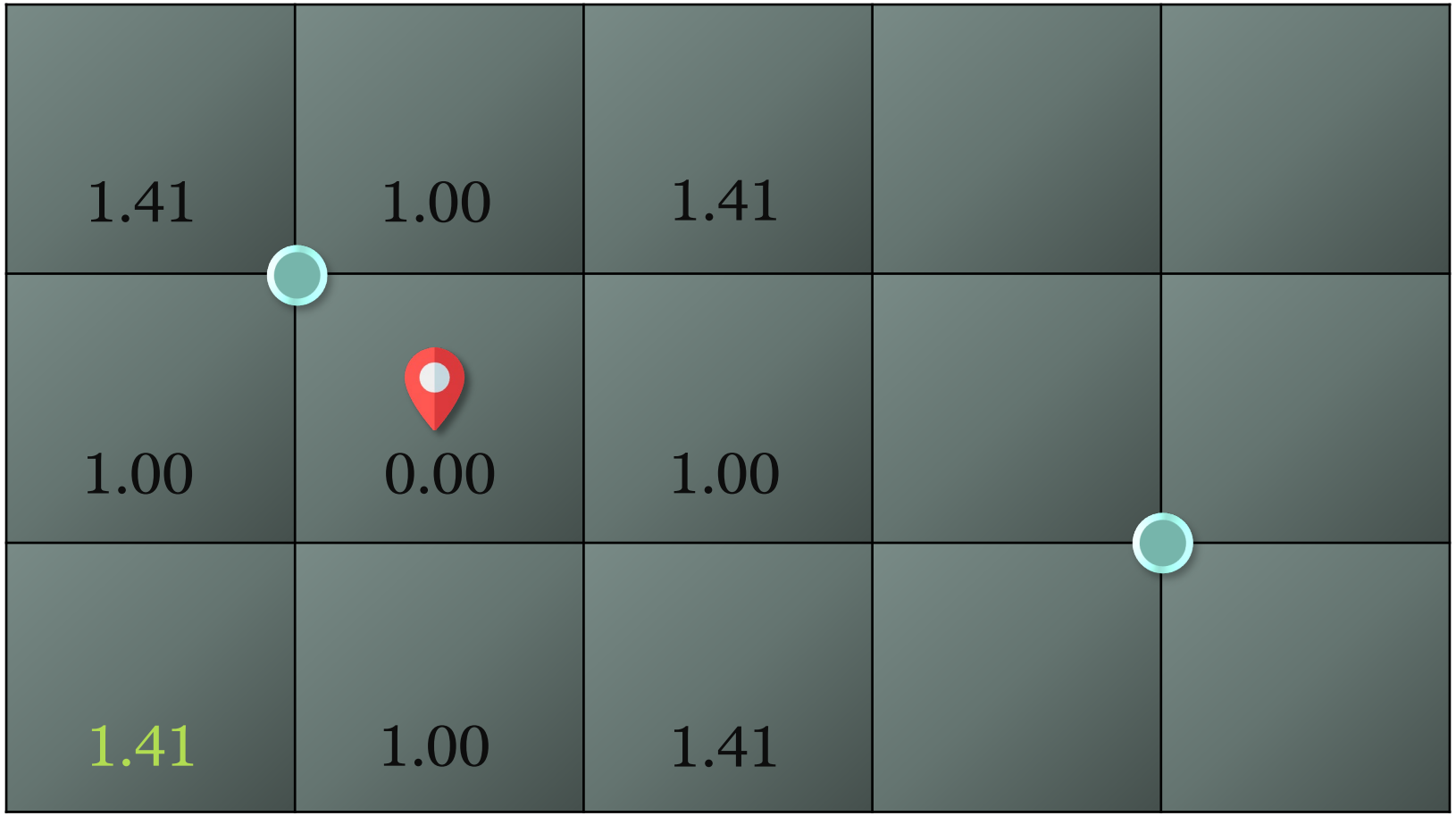

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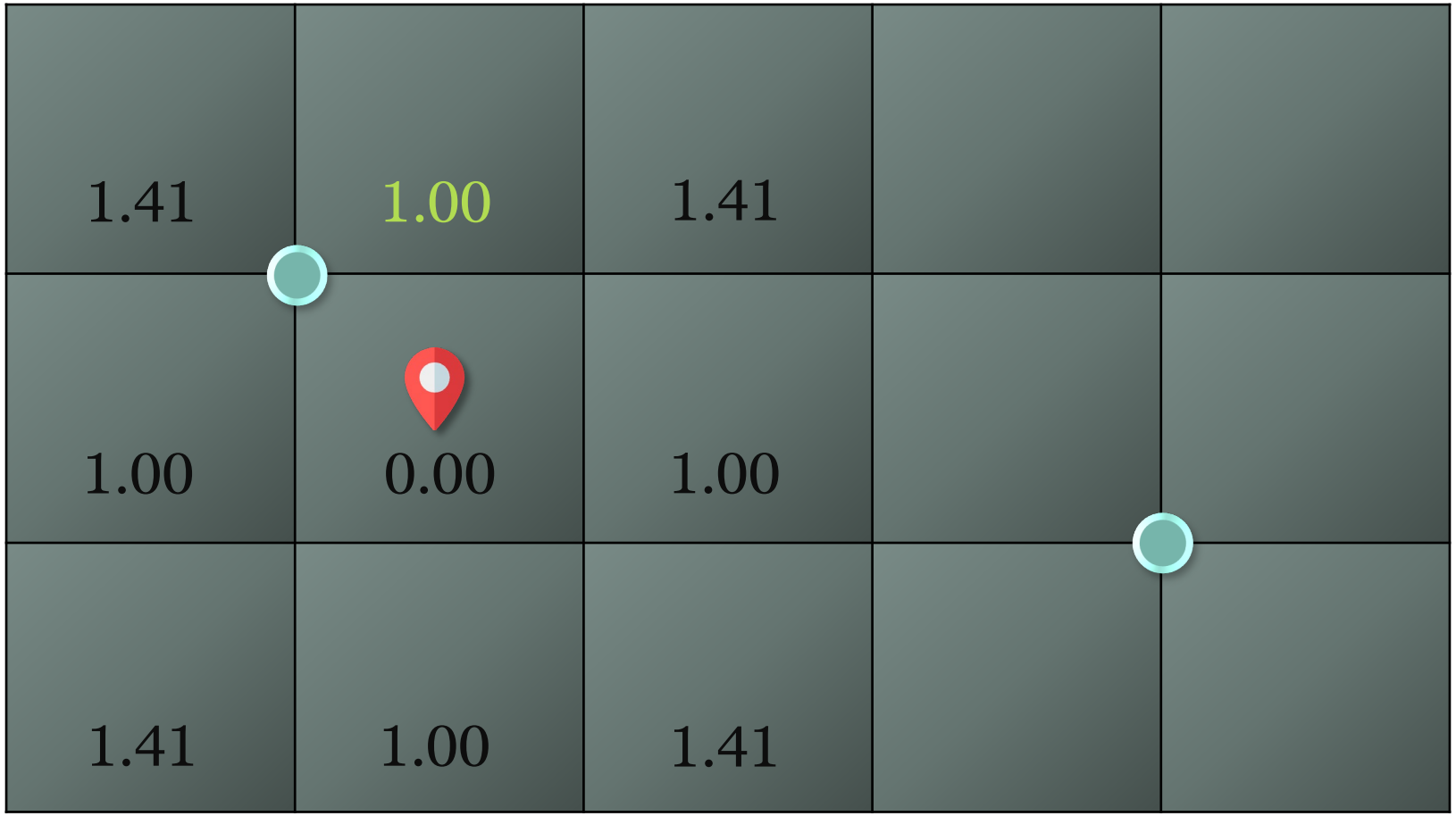

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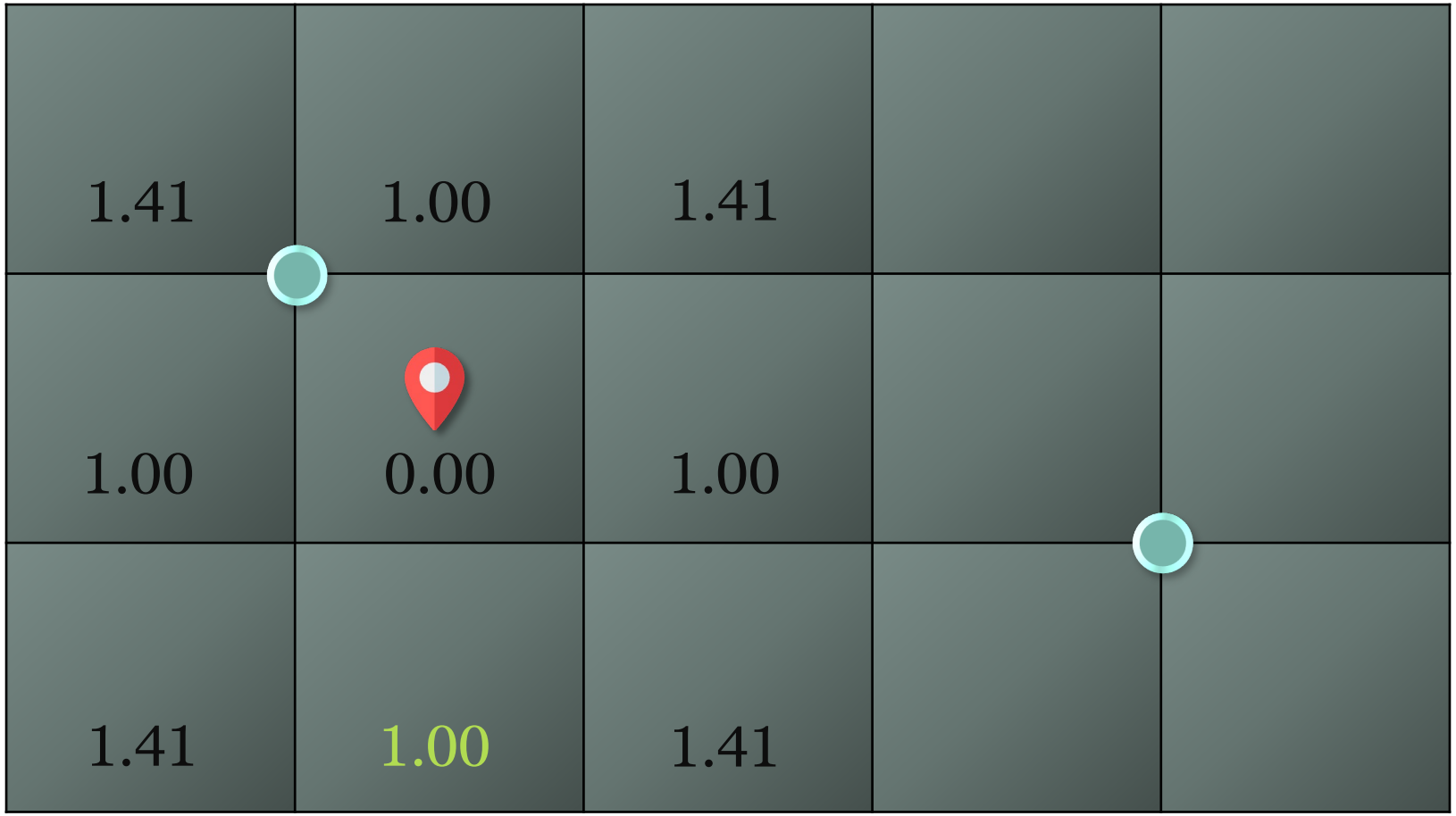

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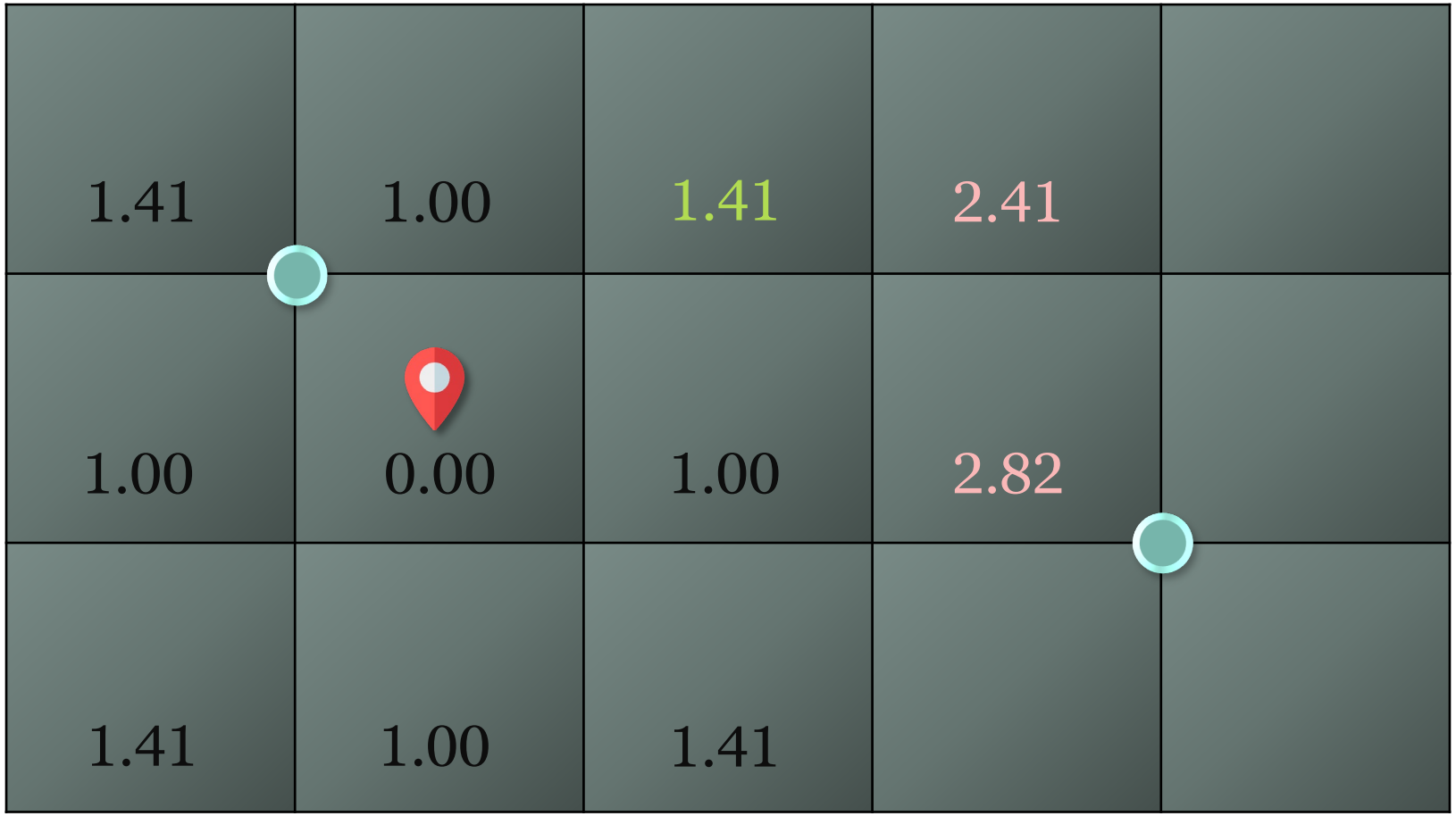

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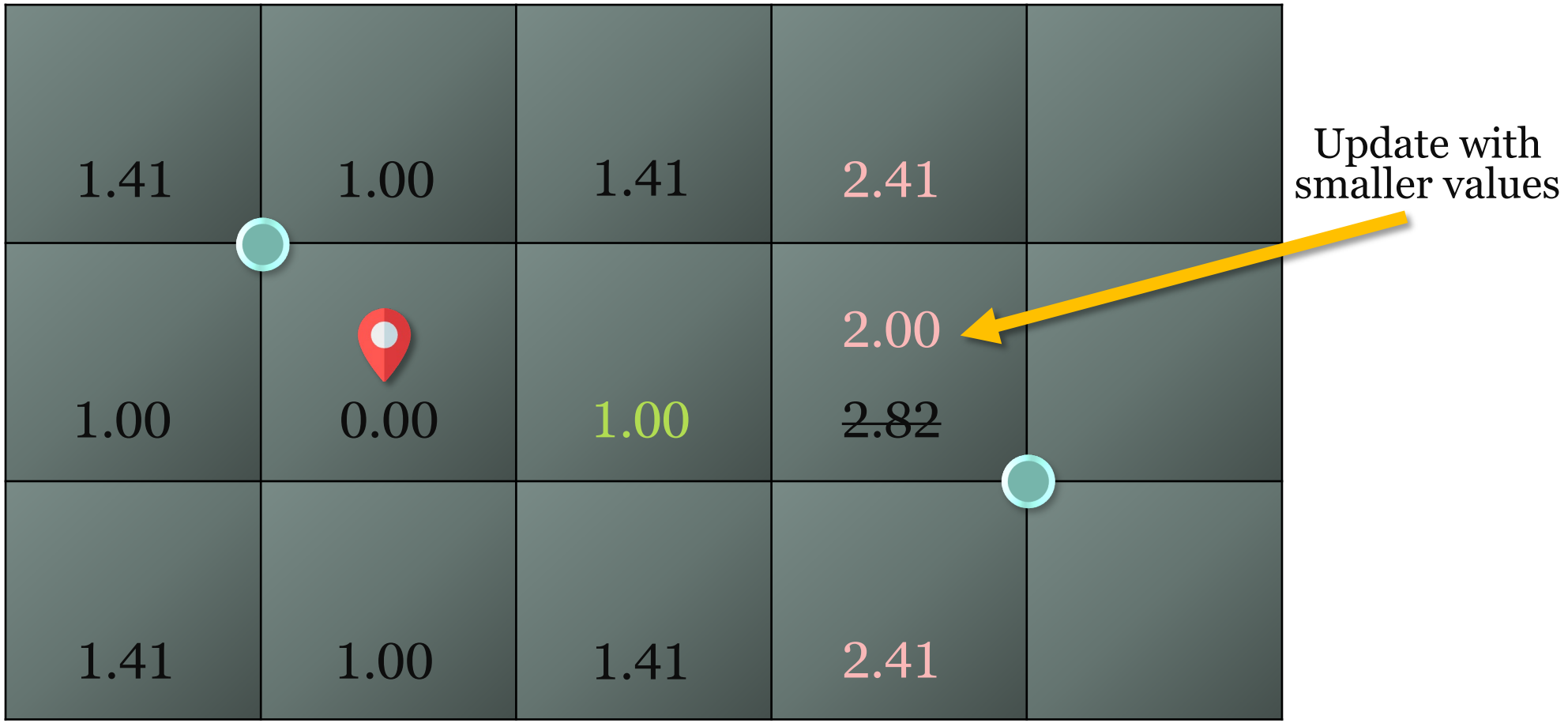

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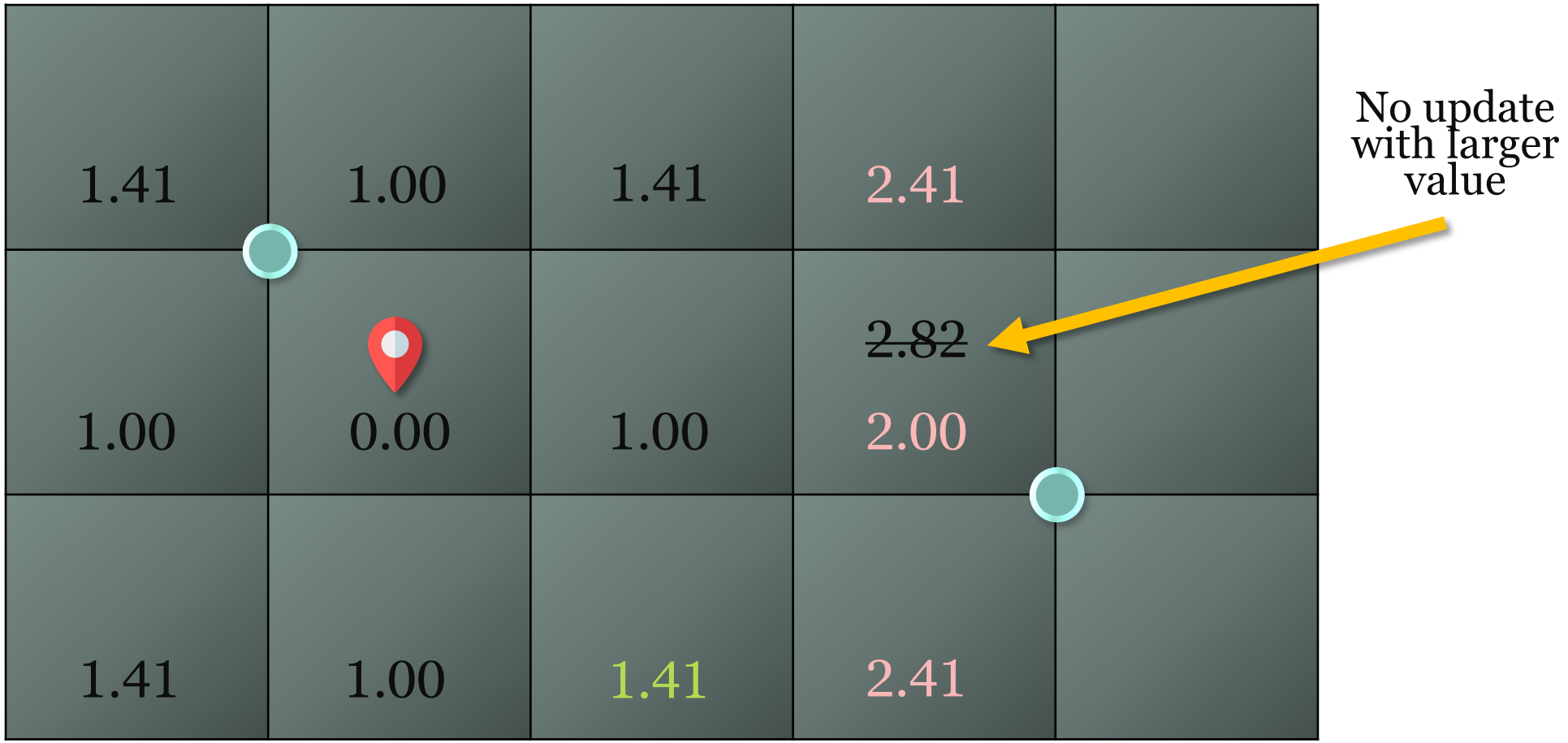

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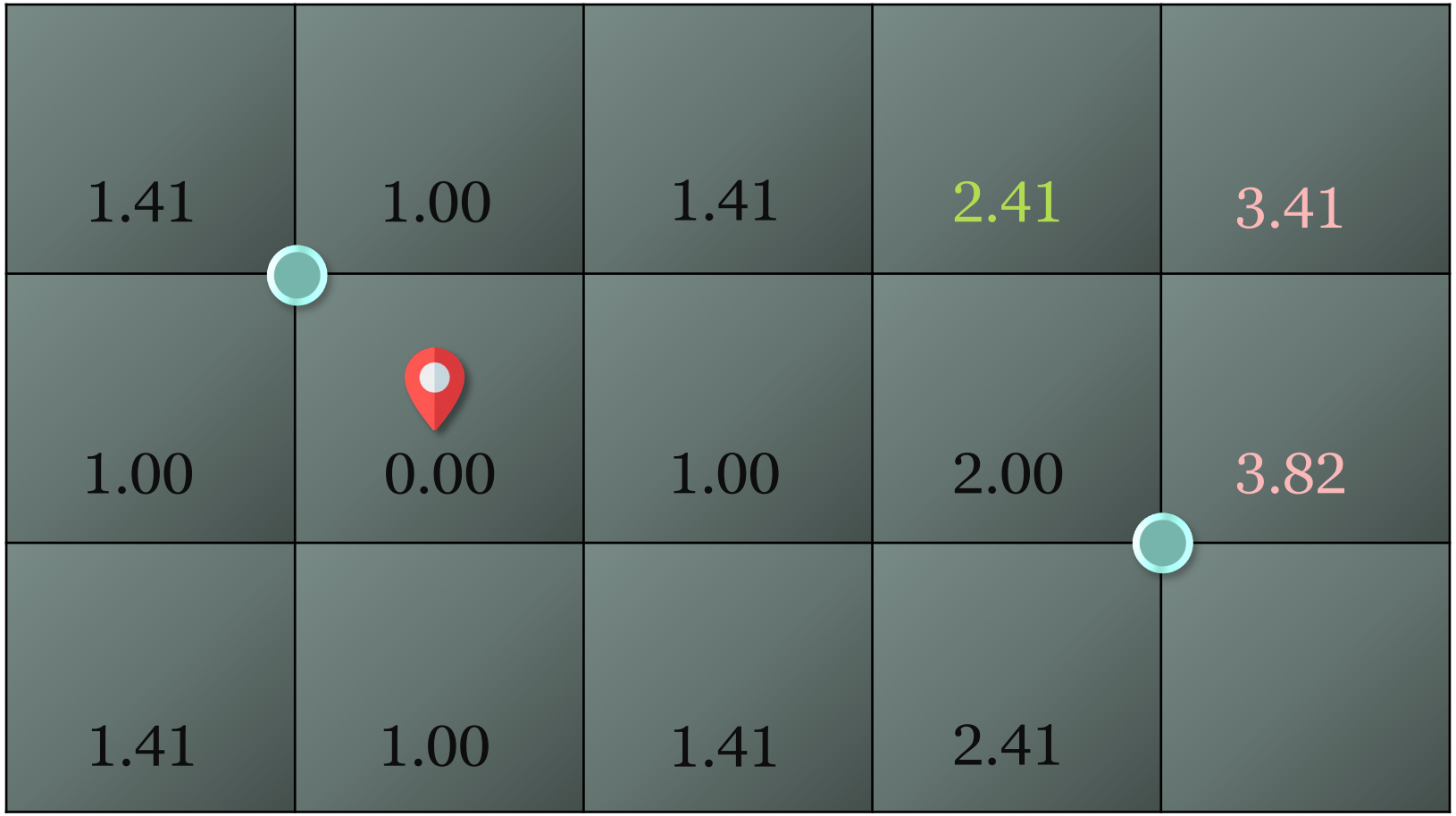

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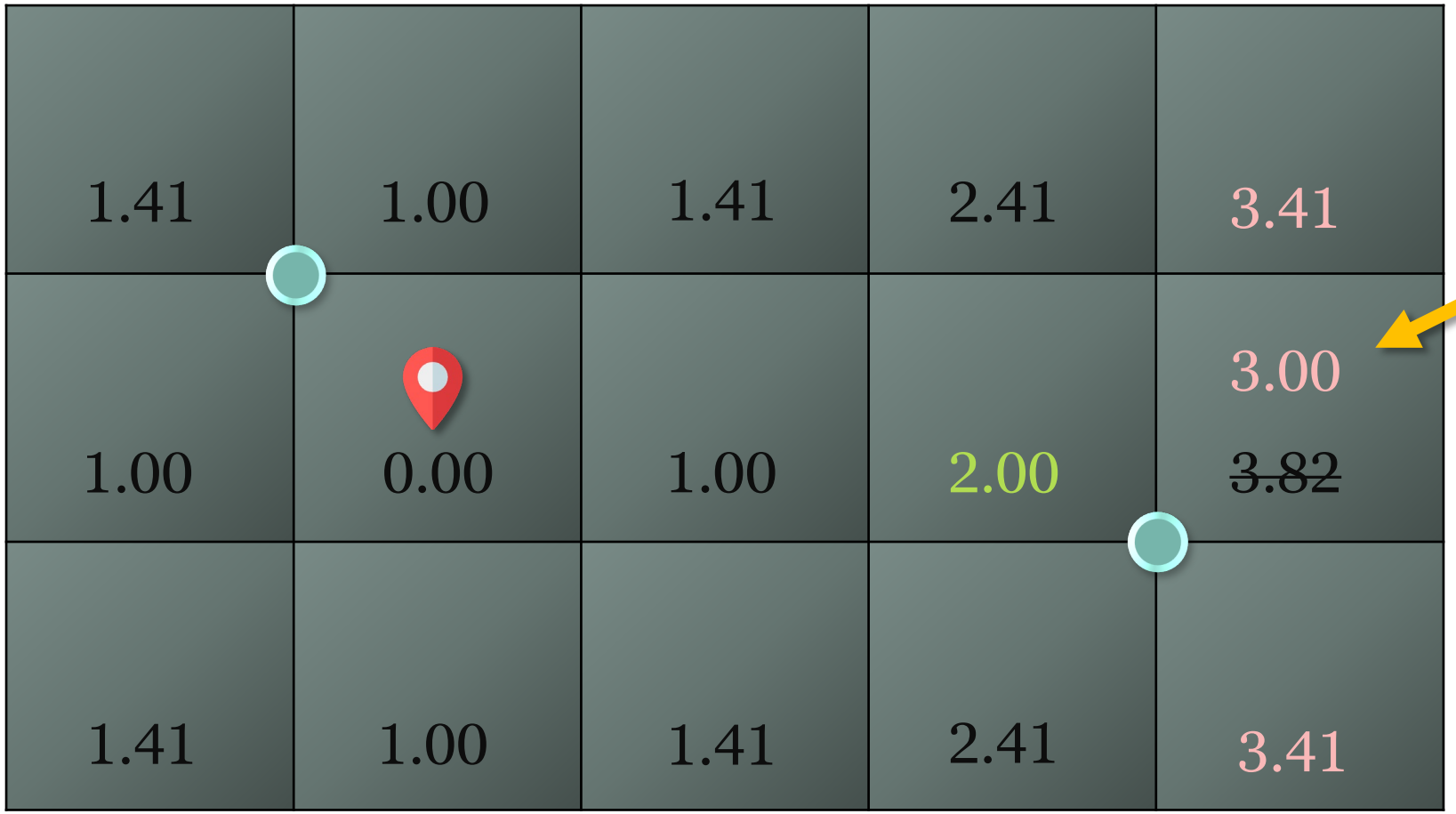

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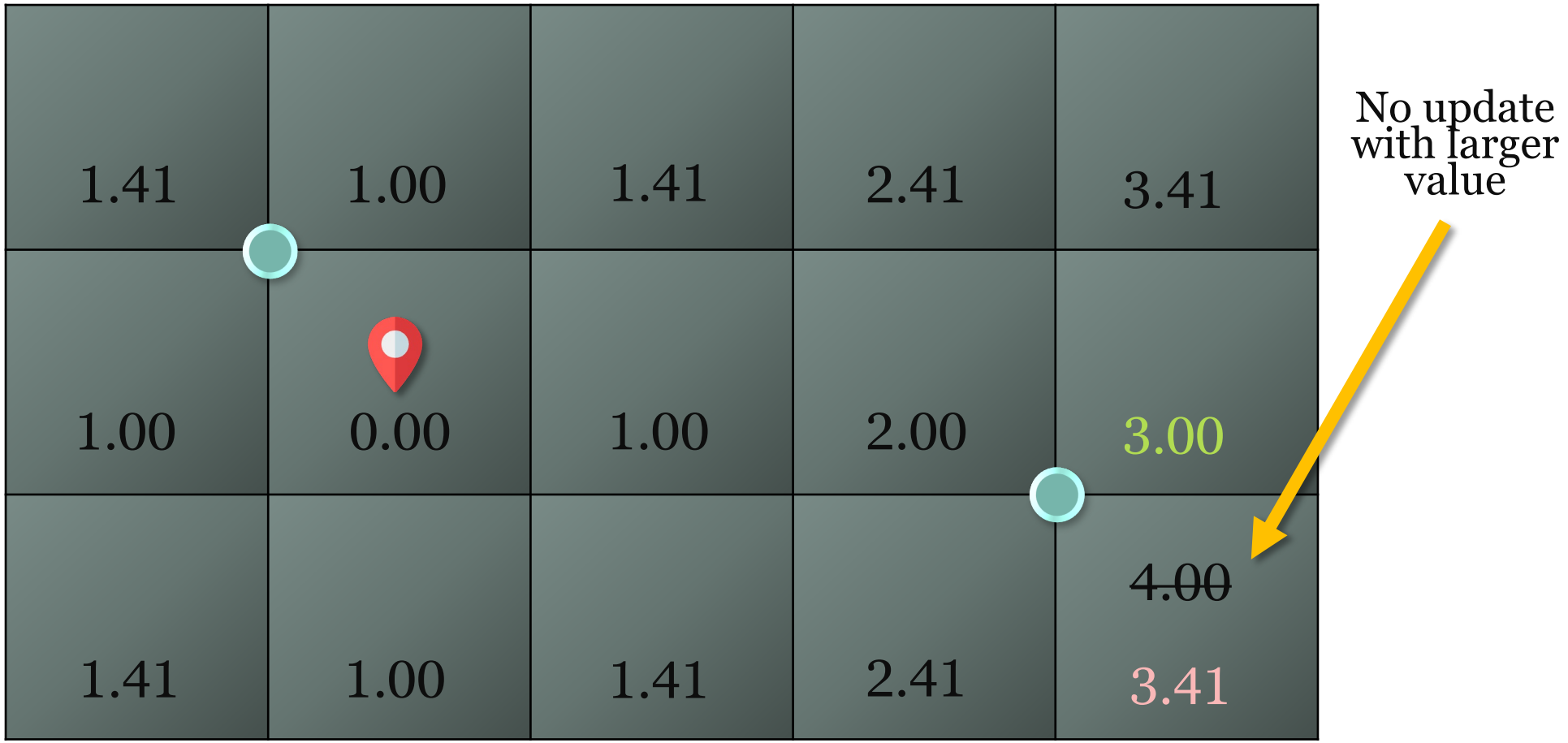

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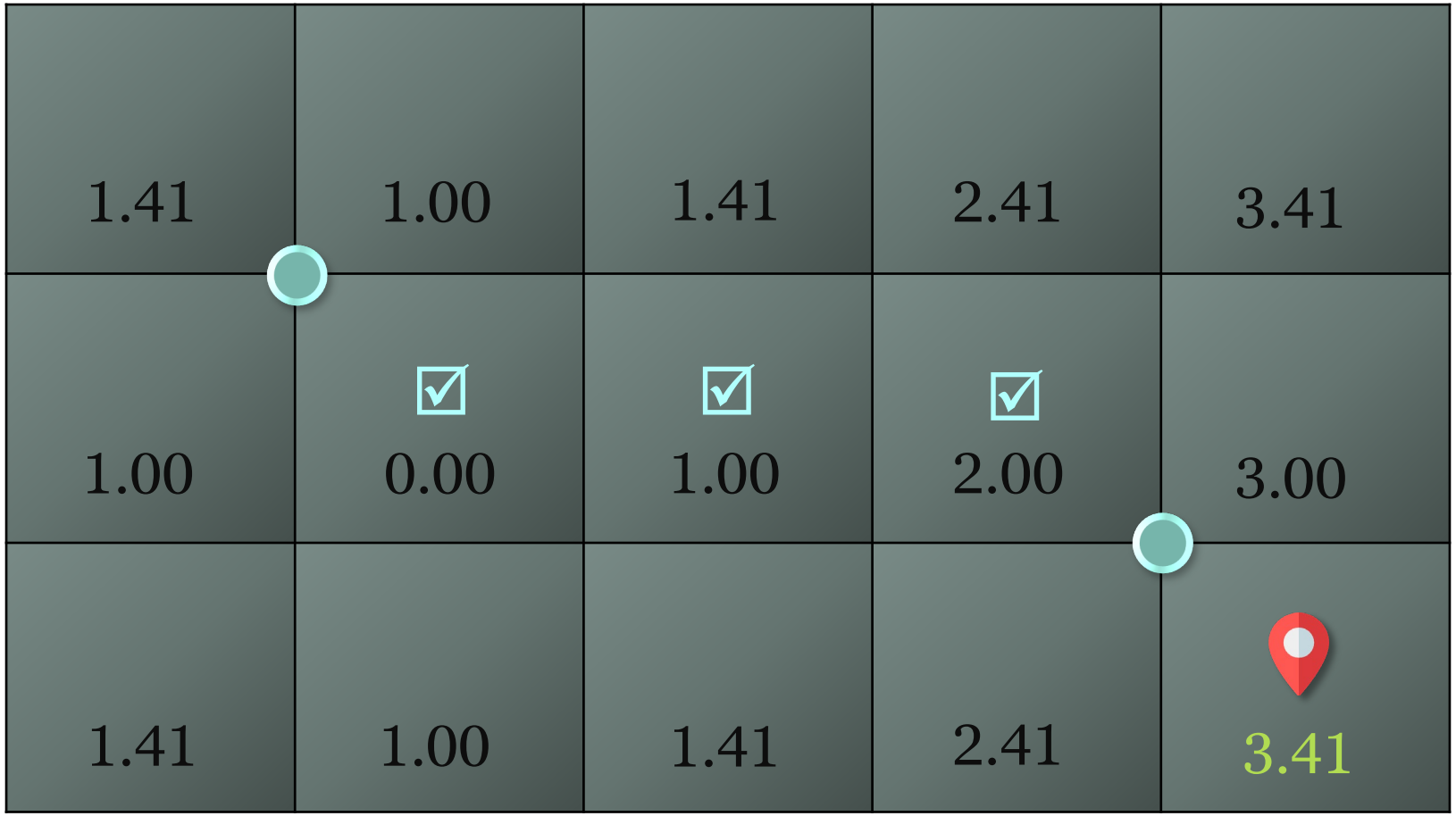

The end…

Time for demonstration