



Consider ways to lay matchsticks (of unit length) on the  $n \times m$  grid in such a way as to form a maze.

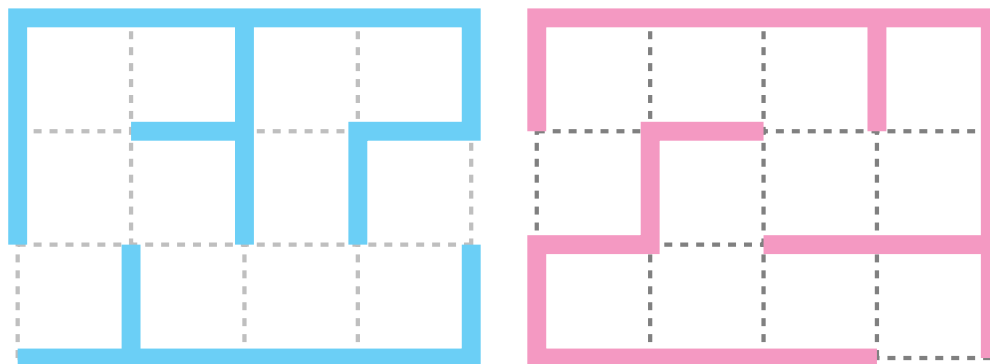


Figure 1: Two mazes on a  $(5 \times 4)$ -cell grid.

**Question.** How many distinct mazes can be drawn on the grid?

**Related.**

1. What if every  $1 \times 1$  cell must be reachable?
2. What if there are no dead ends?
3. What if there are to be identically  $k$  dead ends?
4. What if paths that loop are not allowed?
5. What if the entrance and exit have prescribed positions?
6. What if this is done on a hexagonal or triangular grid? On a torus?
7. Is there a meaningful way to assign “difficulty” to a maze?

**References.**

Problem 56.