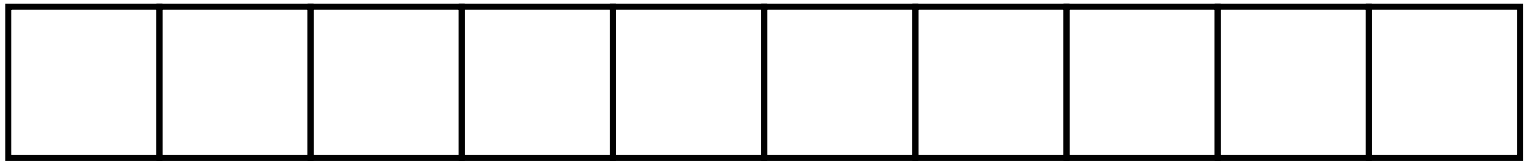
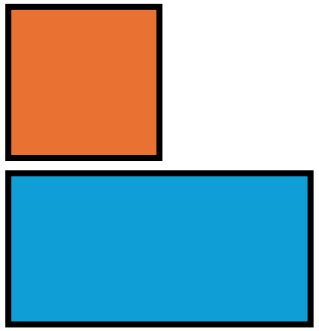
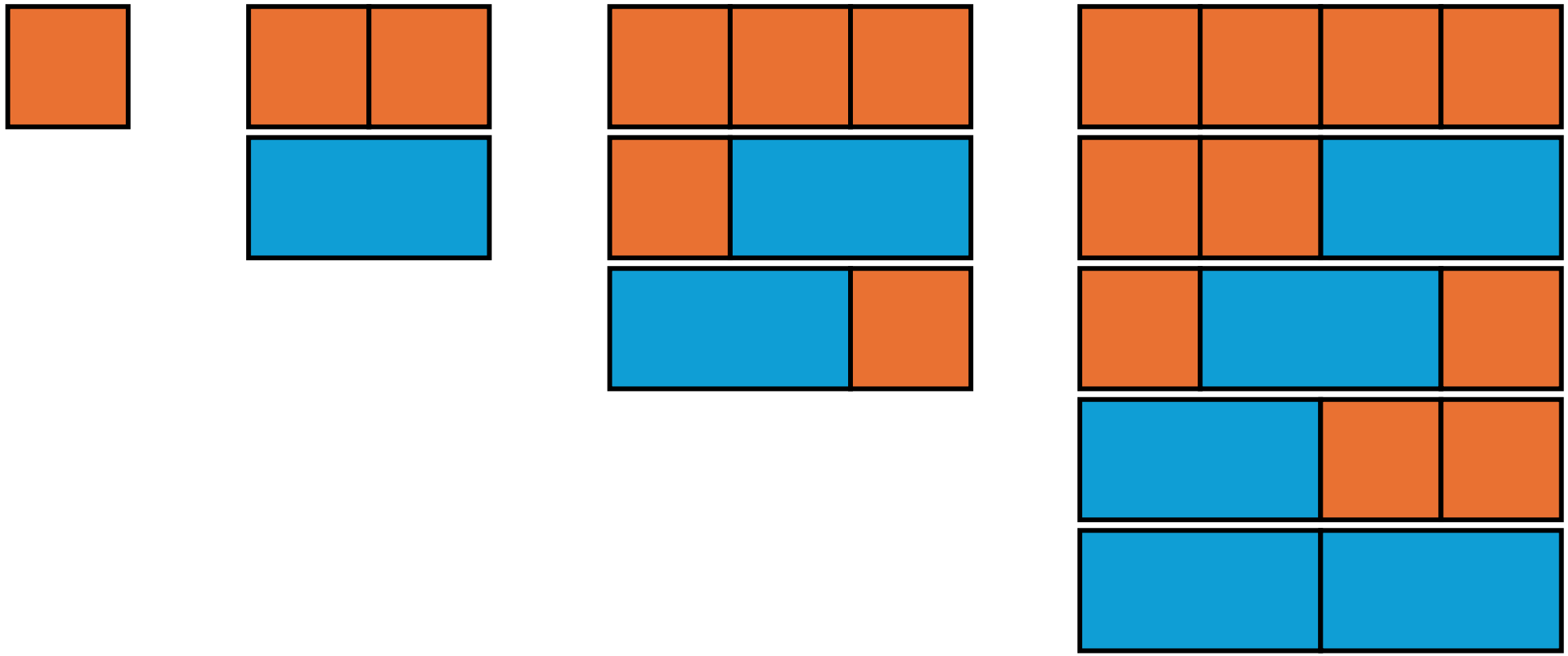
Ein 10×1-Fläche soll gefliest werden:

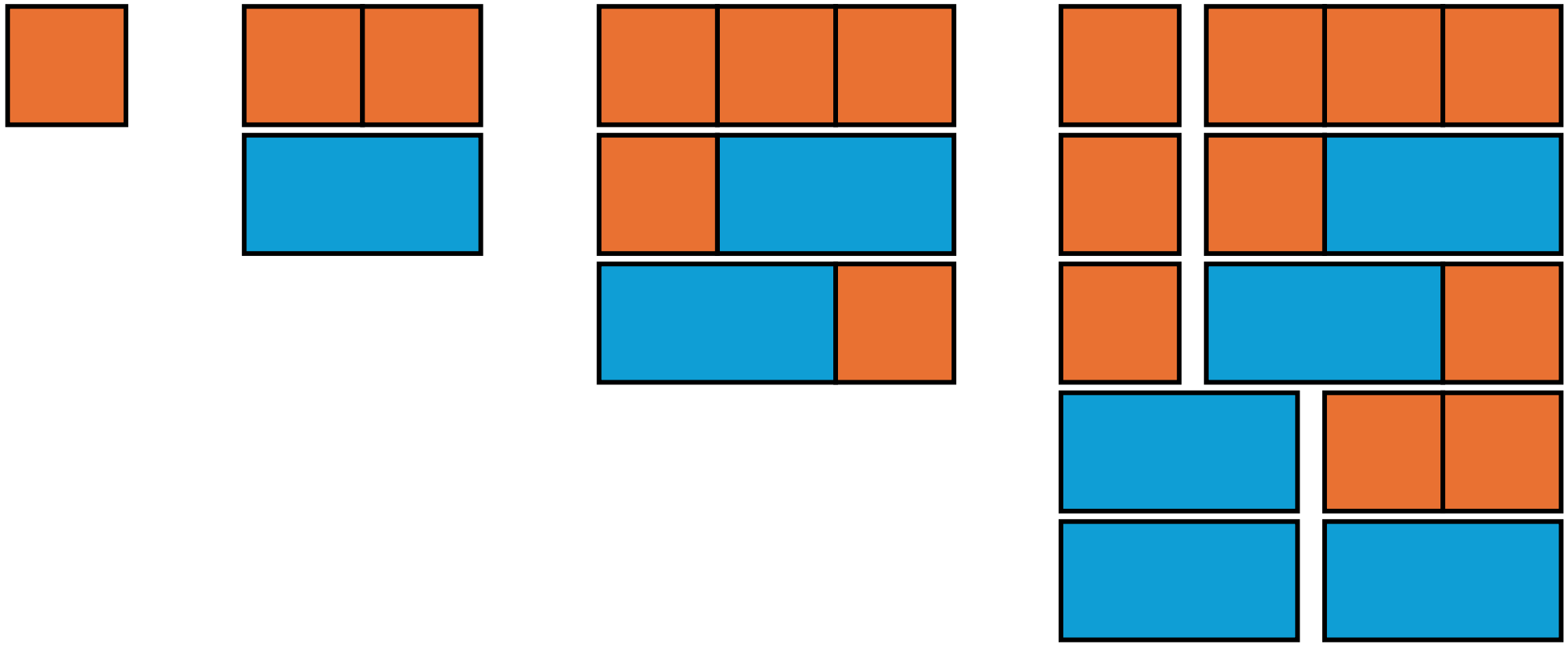


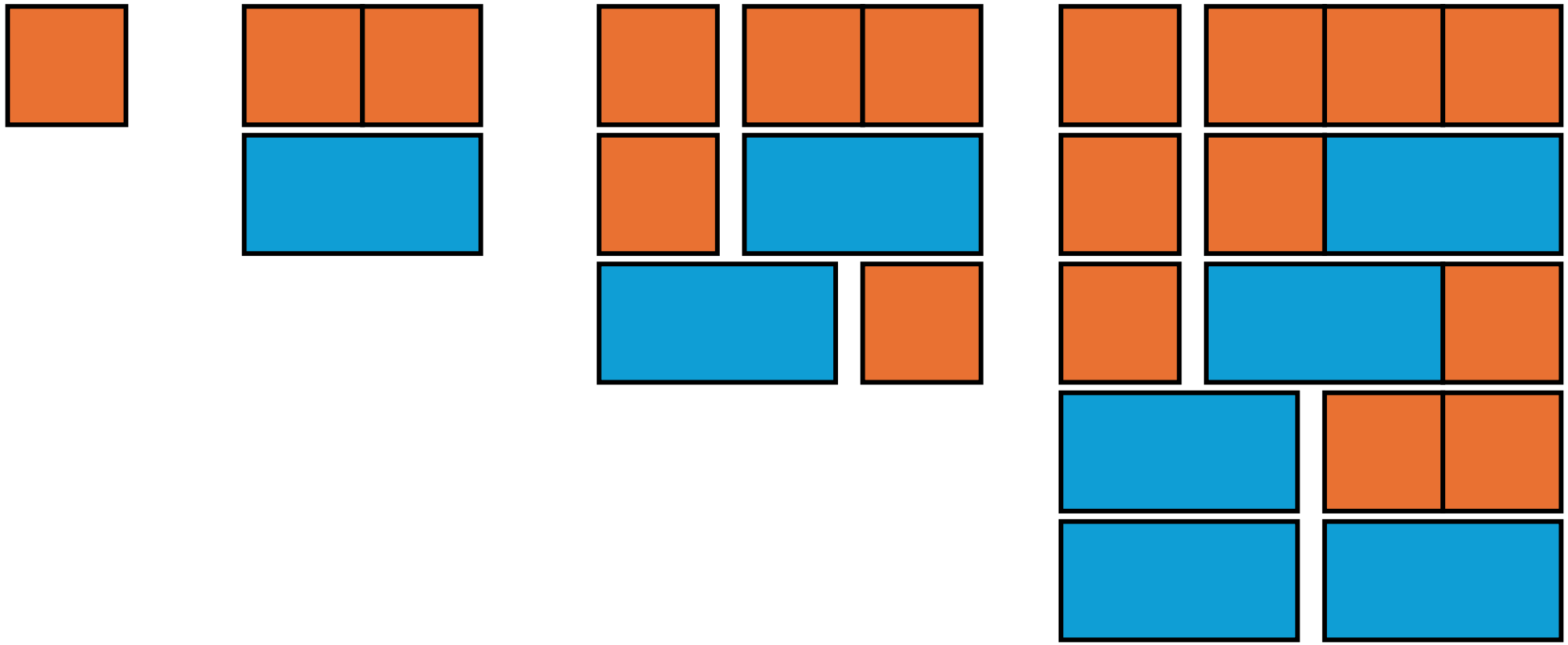
Dafür stehen 1×1-Fliesen und 2×1-Fliesen zur Auswahl:

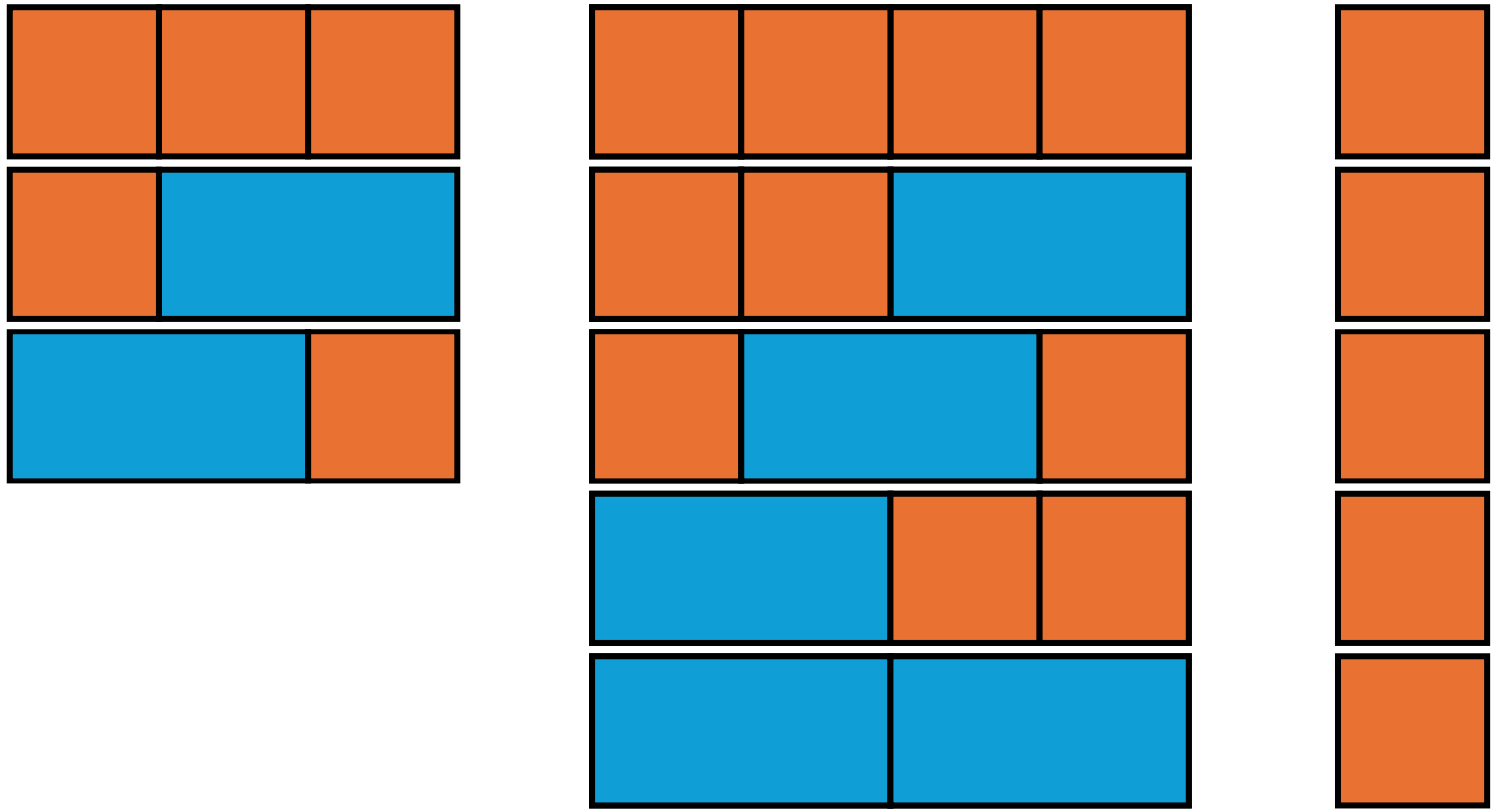


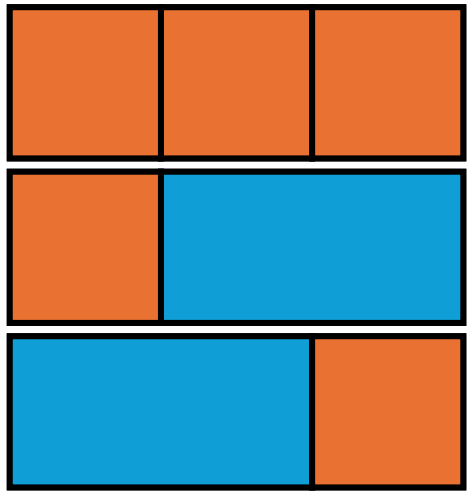
Wie viele Möglichkeiten gibt es, die Fläche damit zu fliesen?

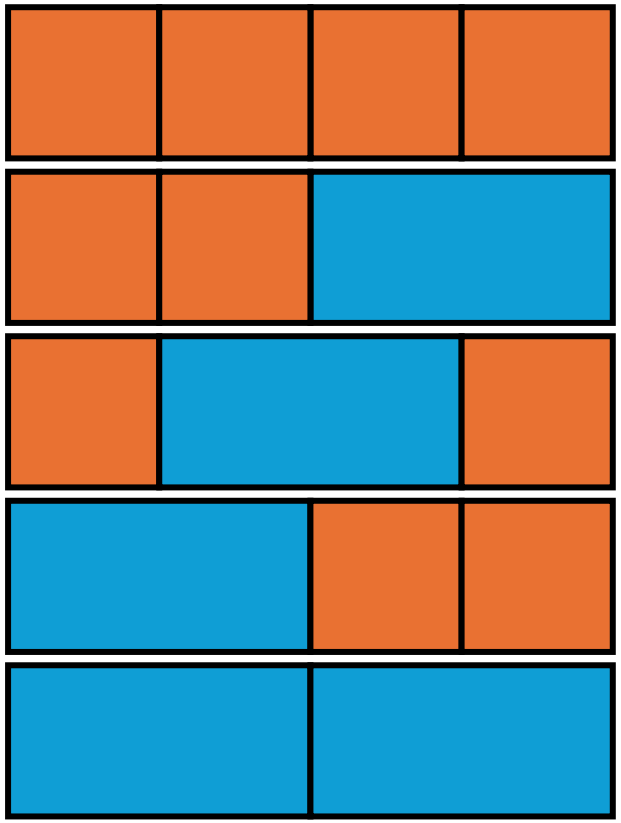


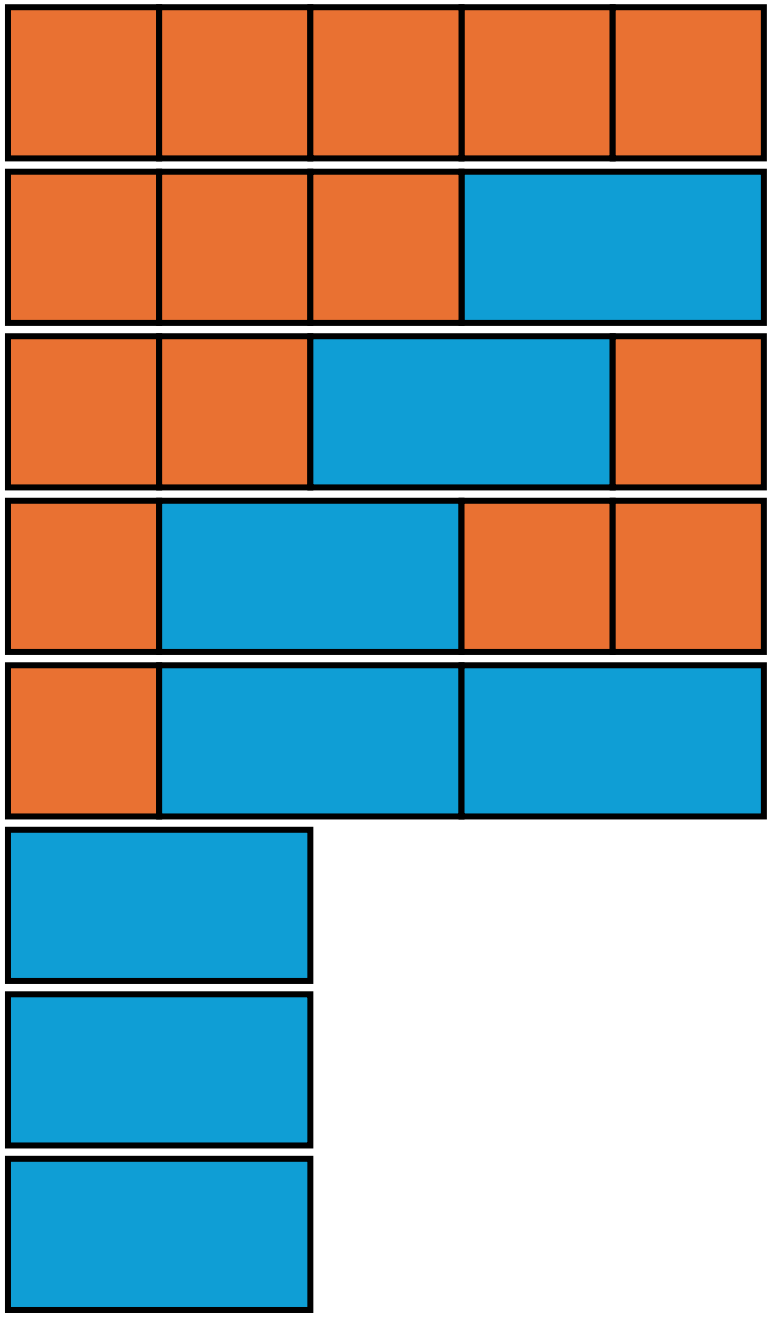


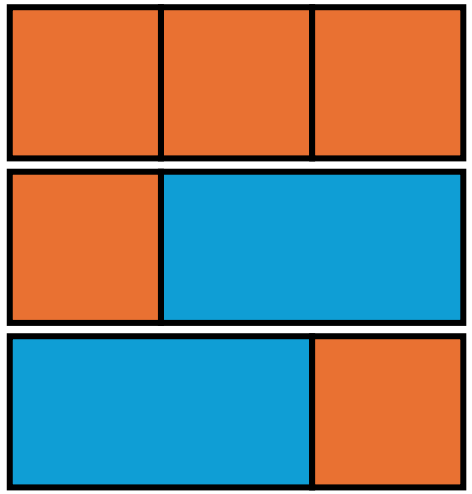


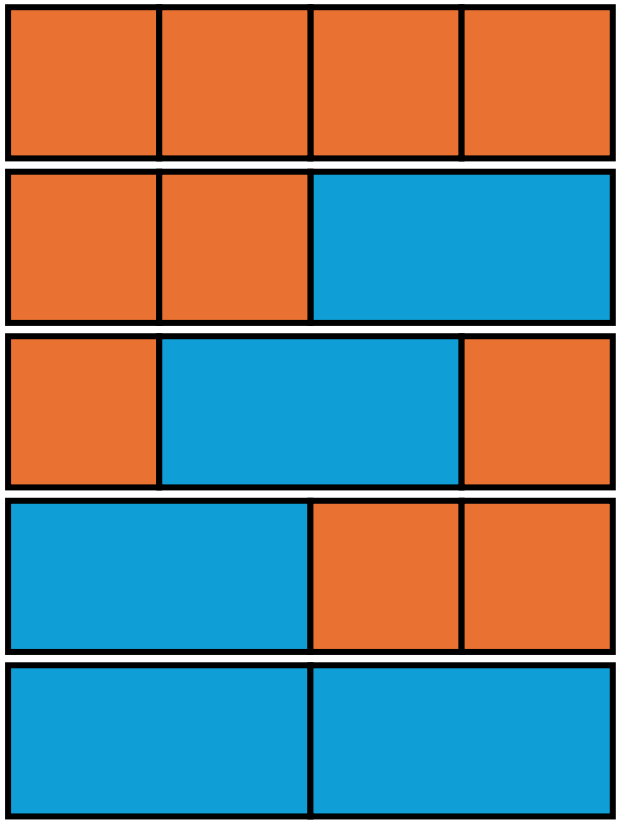


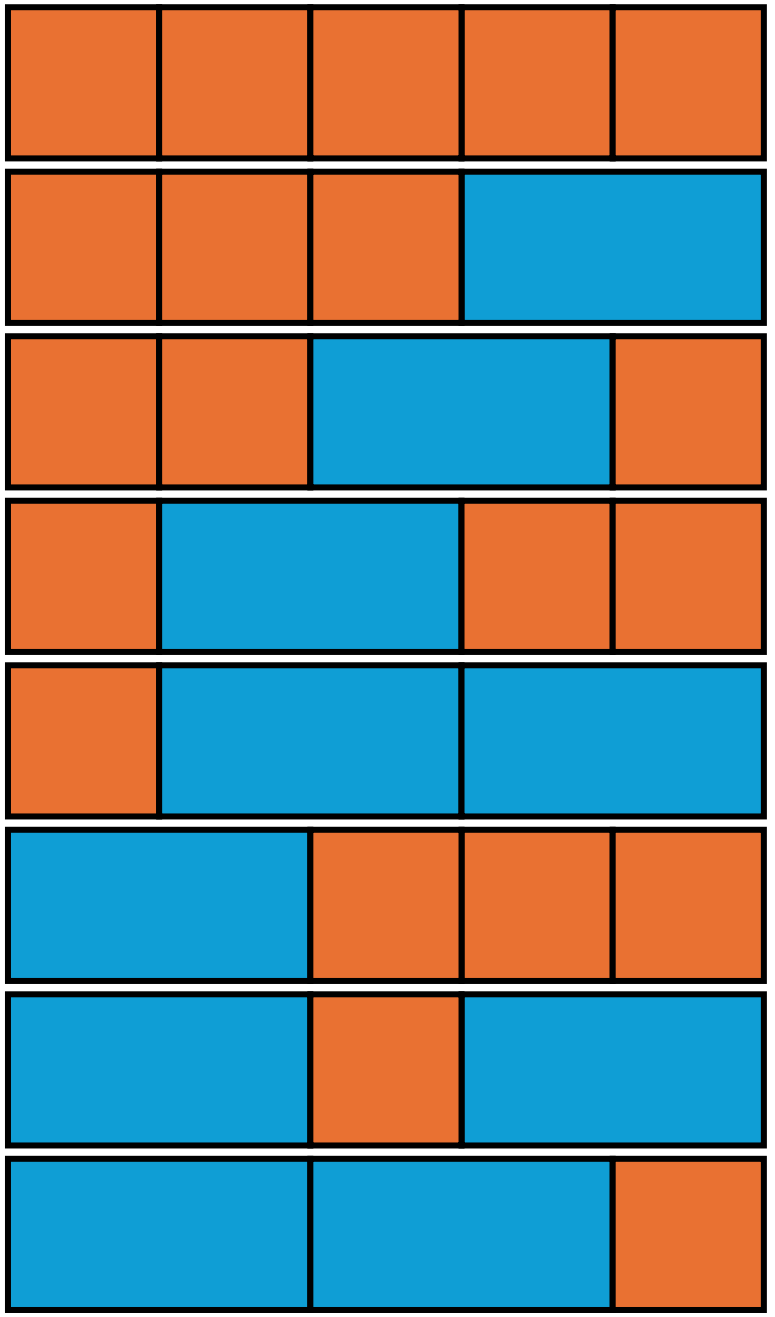












Wie viele Möglichkeiten (#) gibt es, eine $n \times 1$-Fläche zu fliesen?

n	1	2	3	4	5	6	7	8	9	10
#	1	2	3	5	8	13	21	34	55	89

Definition. Die Folge

$$1, 2, 3, 5, 8, 13, 21, 34, 55, 89, \ldots$$

heißt *Fibonacci-Folge*. Die n-te Fibonacci-Zahl ist die Summe der beiden vorherigen Fibonacci-Zahlen, d. h. es gilt

$$F_1 := 1, \quad F_2 := 1, \quad F_n := F_{n-2} + F_{n-1}.$$

Betrachte für verschiedene $n \in \mathbb{N}$ die Summe der ersten n Fibonacci-Zahlen. Formuliere eine Vermutung.

Beweise deine Vermutung.