Consider all of the ways to stack "blocks" of different shapes on a platform of length n.

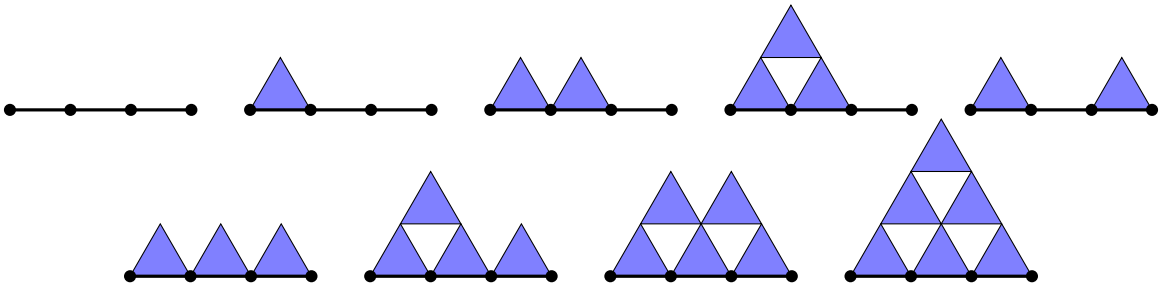


Figure 1: All towers of equilateral triangles on a platform of width 3.

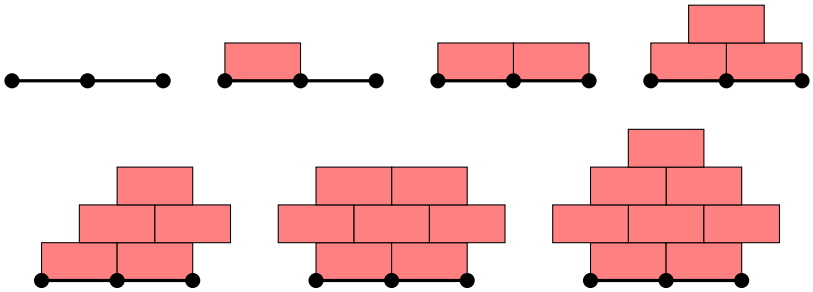
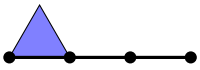
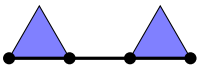


Figure 2: All seven towers of 2×1 bricks on a length 2 platform.

Question. How many different stacks exist for these shapes?

Related.

1. What if  and  are considered to be distinct?
2. What if  and  are considered to be the same (because one turns into the other by "sliding".)
3. What if "upside-down" triangles can be placed in the gaps?
4. What if "upside-down" triangles *must* be placed in the gaps in order to stack on top?
5. What about bricks of length 3?
6. What about tetrahedrons and cuboids?

Note. If cantilevers are not allowed, the brick stacking problem reduces to the triangle stacking problem.