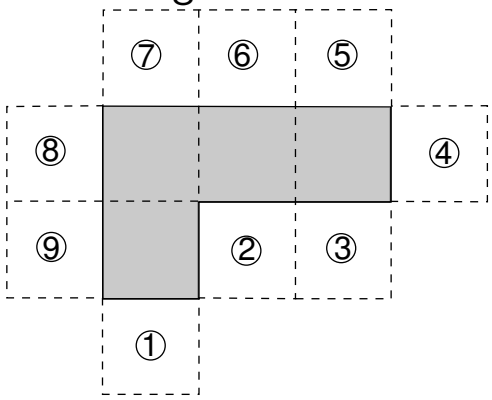
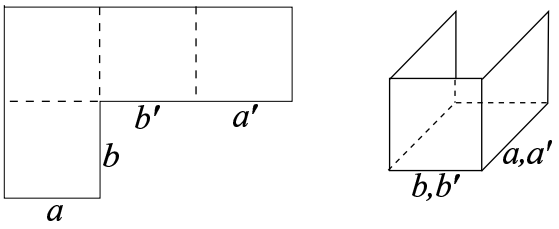
- The polygon enclosed by the solid lines in the figure consists of 4 congruent squares joined edge-to-edge. One more congruent square is attached to an edge at one of the nine positions indicated. How many of the nine resulting polygons can be folded to form a cube with one face missing?



(A) 2 **(B)** 3 **(C)** 4 **(D)** 5 **(E)** 6

2003 AMC 12 A, Number #13— "Fold first, then attach"

- **Solution (E)** If the polygon is folded before the fifth square is attached, then edges a and a' must be joined, as must b and b'. The fifth face of the cube can be attached at any of the six remaining edges.



Difficulty: Medium

NCTM Standard: Geometry Standard for Grades 9–12: Use visualization, spatial reasoning, and geometric modeling to solve problems.

Mathworld.com Classification:
Geometry > Solid Geometry > Polyhedra > Polyhedron Properties > Net