Israeli Mathematical Olympiad – 3rd Grade
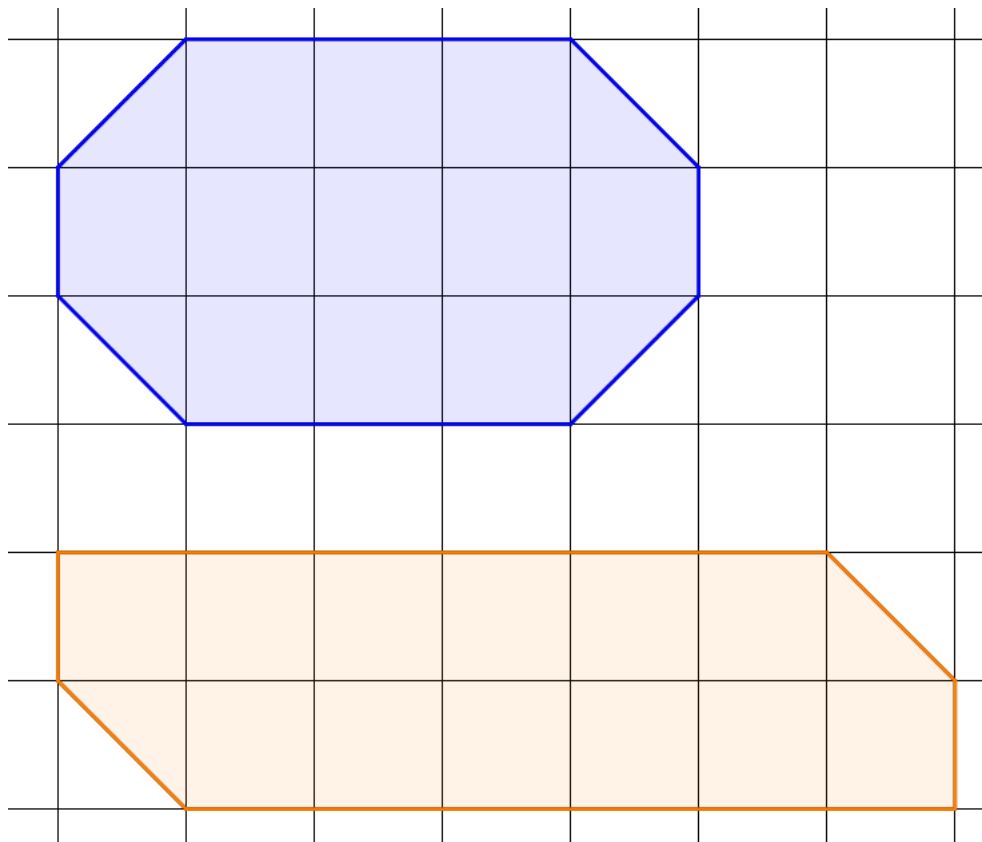## Final Stage, Year 5783

1. Bob has stone tiles in three different shapes: triangles, squares and pentagons. The total number of sides among all of the tiles is 87. There are 11 more pentagonal tiles then triangular tiles. How many tiles does Bob have? Explain your answer.

2. Pinocchio has 9 chocolate candies and a magical bucket. Every night, if Pinocchio puts **all** of his candies in the bucket, the next morning there will be five times as many candies in the bucket.

Every day, Pinocchio can either eat 9 candies, or no candies at all, according to his special diet. Is it possible that after several days, in the morning, Pinocchio will have exactly 10 candies? Explain your answer.
Note: Pinocchio can also choose not to put his candies in the bucket at night.

3. Show how to divide the first shape into two identical parts (identical in both shape and size), and construct the second shape from these two parts.
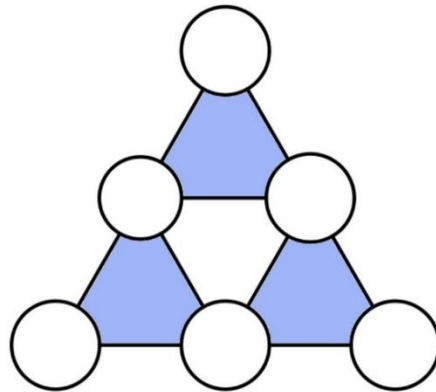

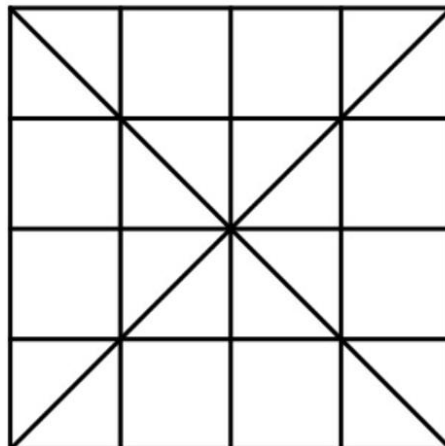
More questions on the
second page!

4. In each of the six circles below, write one of the numbers 1,2,3,4,5,6, such that each of the numbers is written exactly once, and the three sums of the numbers around each of the three blue triangles are equal to each other.

5. All corners in the picture have right angles. Additionally, the hatched (black) quadrilateral is a square. Find the perimeter of the blue shape. Explain your answer.

14

11

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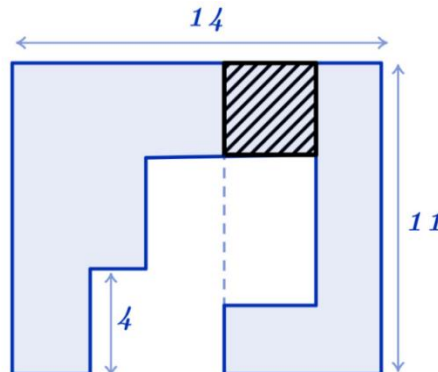
6. How many triangles appear in the picture? Explain your answer.

בהצלחה!