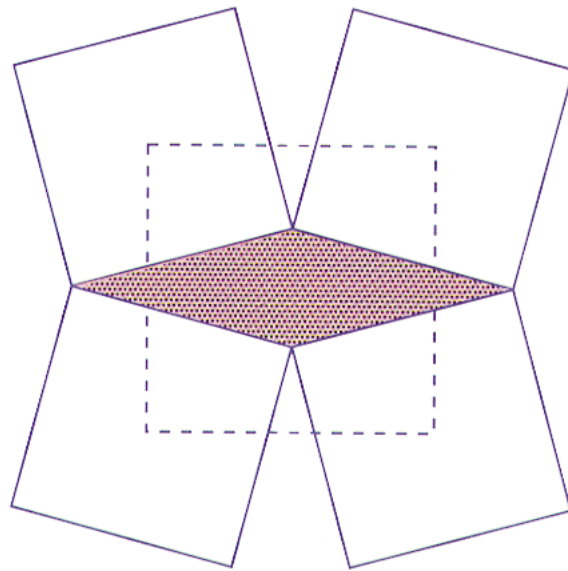


Five Squares on a Rhombus

Problem-of-the-Week

The Problem

Four 6-by-6 squares are drawn on a rhombus having two 30° -angles. Find the area of a fifth square that is formed by connecting the centers of the squares.



Strategies and Hints

1. Find the length of a diagonal of one of the 6-by-6 squares. What is half the length of this diagonal?
2. The key to the solution is a triangle with its longest side less than $6\sqrt{2}$ units. The drawing shows some possible triangles.
3. The cosine of 120° is -0.5 . How is this fact used in the solution?

