

Then I wanted to check the area using the formula for finding the area of a square, which is $\text{area} = (\text{length of side})^2$.

So, I needed to find the length of a side. The length of one side was equal to 8 times the length of the diagonal of the right triangles formed when you cut the halves in half. Since the whole brick was 2 units by 1 unit, I knew that the halves would be 1 unit by 1 unit. When they made the triangles by cutting the small squares on the diagonals, I knew that the sides that formed the right angles of the triangle were each one unit. For right triangles, if you square the lengths of the sides that form the right angle and add them together, you get the length of the diagonal squared.

So for this triangle, $1^2 + 1^2 = (\text{length of diagonal})^2$

Which means, $1 + 1 = 2 = (\text{length of diagonal})^2$

So, the length of the diagonal = $2^{1/2}$ (square root of 2)

So, the length of a side of the pattern sample = $8 * 2^{1/2}$. The pattern sample is a square. So, the area of the pattern sample is the length of the side squared.

$\text{Area} = (8 * 2^{1/2})^2$

$\text{Area} = 8^2 * (2^{1/2})^2$

$\text{Area} = 64 * 2$

$\text{Area} = 128$ square units.

Since it matched my other solution, I knew I was right. To find the number of bricks from the area, I could take

$128 \text{ square units} / 2 \text{ square units per brick} = 64 \text{ bricks}$.

Scoring Rubric

A **problem-specific rubric** can be found linked from the problem to help in assessing student solutions. We consider each category separately when evaluating the students' work, thereby providing more focused information regarding the strengths and weaknesses in the work.

We hope these packets are useful in helping you make the most of Pre-Algebra Problems of the Week. Please let me know if you have ideas for making them more useful.