



Problem of the Week

Problem B

Who Was Pythagoras?

Part of the side length of the large square shown in Figure 1 is 5 units. The remainder of the side length is 12 units. It follows that the total side length of the square in Figure 1 is $5 + 12 = 17$ units.

Within the large square in Figure 1, there are four right-angled triangles, which we shall call $A1$, $A2$, $A3$ and $A4$, and two squares $S1$ and $S2$.

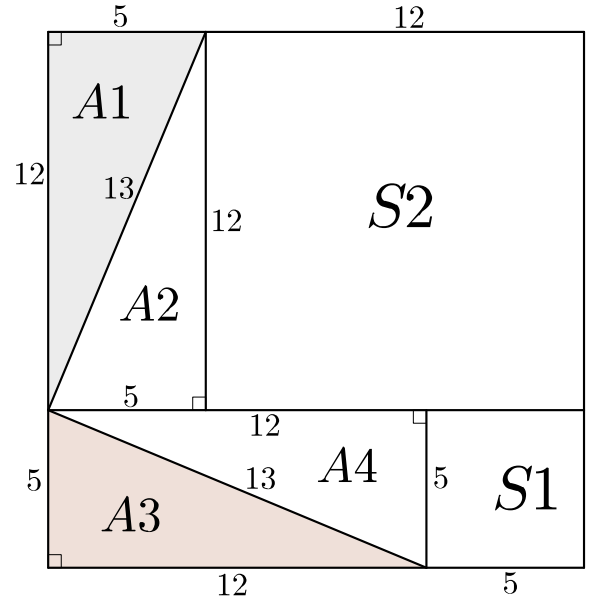


Figure 1

- How do you know that all four triangles are congruent to one another?
- What are the areas of $S1$ and $S2$?
- Figure 2 contains the same large square of side length 17 as in Figure 1. Figure 2 contains five geometric shapes. What must be the shape of the interior figure S ? Explain your answer, stating the length of the sides of S , and the area of S .
- Now compare Figure 1 to Figure 2. Which areas are the same in both Figure 1 and Figure 2? What areas of Figure 1 must sum to give the area of S ?
- Write your result from d) as an equation. This will tell you how the side lengths **5**, **12**, **13** of a right-angled triangle are related.

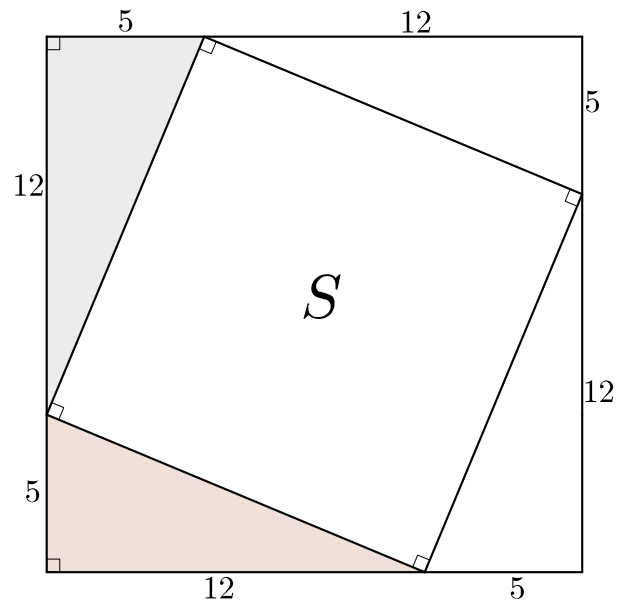


Figure 2

