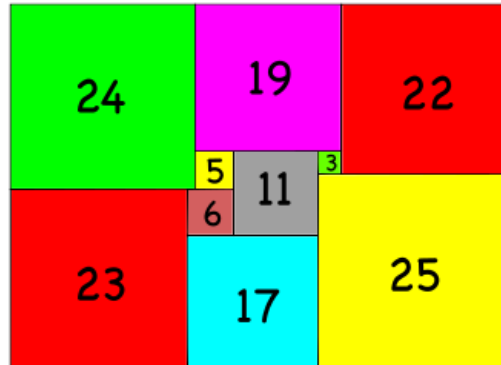


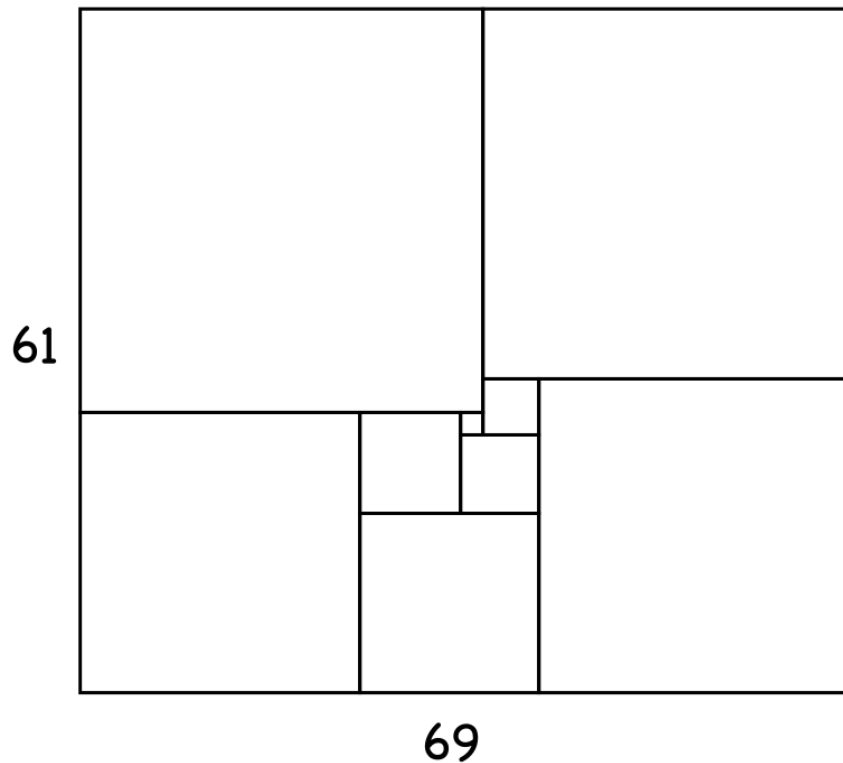
Puzzle of the Week

Perfect Rectangles – 2

A rectangle that can be filled with squares, no two of which have the same size, is called a **Perfect Rectangle**. Here is an example of a 47 by 65 Perfect Rectangle filled with 10 squares of different sizes.



THE CHALLENGE: Find the sizes of the squares in this 61 by 69 Perfect Rectangle filled with 9 squares.



Puzzle of the Week

Perfect Rectangles – 2 – Notes

THE CHALLENGE: One of the easier places to start is to look at the four large squares in the four corners.

The size of the upper left plus the upper right is 69, while the upper left plus the lower left is 61, so that means the lower left is 8 less than the upper right. Similarly, the size of the upper right plus upper left is 69, while the upper right plus the lower right is 61, so that means the lower right is 8 less than the upper left. Putting that together, the sum of the two upper squares is 16 more than the sum of the two bottom corners. Therefore, the square in the middle of the bottom must have size 16.

The two squares on top of the size 16 square have sizes that add up to 16 and a difference that is the size of the central small square. Therefore, the central square has size 2, 4, or 6. However, 4 and 6 are visibly too large, so the central squares size is 2, and the two squares on top of the 16 square are 7 and 9.

The rest of the sizes follows pretty easily from that information and knowing the size of the rectangle.

