

# MORE WITHOUT WORDS

*Mathematical Puzzles to Confound and Delight*



## MWW 16: SOLUTION

Lines that connect midpoints in a square divided the square into 5 smaller squares. Lines that connect third-way points, 10 smaller squares. Coloring the pieces of the small squares helps one see this. (Alternatively, tile the floor with these pictures as the opening picture of the puzzle suggests.)

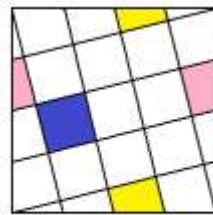


5

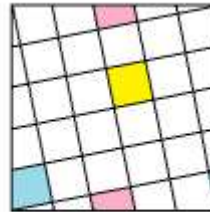


10

Four-way points and five-way points give 17 and 26 smaller squares.



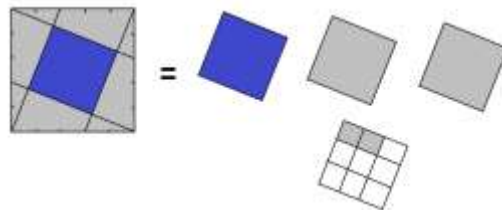
17



26

**Question:**  $5 = 2^2 + 1$ ,  $10 = 3^2 + 1$ ,  $17 = 4^2 + 1$ ,  $26 = 5^2 + 1$ . Coincidence?

For lines connecting two-fifths marks,  $3\frac{2}{9}$  copies of the central square formed match the original square.



**Challenge:** Prove this!