Triangle Mosaic: Geometric Count

Total triangles counted: 338

13 distinct hypotenuse lengths

Basis of the count

The mosaic was treated as an exact geometric line network on a 5 x 5 square grid. **Every triangle in the design is a right isosceles triangle.** A triangle was counted only when all three of its sides were completely present as continuous grout/tile boundaries in the reconstructed network. Larger composite triangles were counted in addition to the individual triangular tiles that form them.

The large red triangular tile was used as the unit reference: its legs are 1 and 1, with hypotenuse $\sqrt{2}$. The smallest individual triangular tiles in the pattern have hypotenuse $1/2$.

Count by hypotenuse length

Size	Hypotenuse length	Triangle count
1	$1/2$	**16**
2	$\sqrt{2}/2$	**56**
3	1	**74**
4	$\sqrt{2}$	**69**
5	2	**30**
6	$3\sqrt{2}/2$	**5**
7	$2\sqrt{2}$	**36**
8	3	**18**
9	4	**4**
10	$3\sqrt{2}$	**18**
11	5	**2**
12	$4\sqrt{2}$	**8**
13	$\sqrt{50} = 5\sqrt{2}$	**2**
	TOTAL	**338**

Observations

- **Largest triangles:** There are exactly two maximum-size triangles, each with legs 5 and 5 and hypotenuse √50 = 5√2.
- **Why the total is deceptive:** Individual tile edges participate in multiple larger triangles, often at several scales and orientations. Visual counting therefore tends to produce both omissions and accidental double-counting.
- If the grid had been divided into the smallest triangle currently displayed, each square in the 5X5 grid would include 16 small triangles and the total piece would contain 400 of these small triangles, that is 400 individual triangular mirror or tile pieces each with a hypotenuse half the length of the side of the large red triangles in the original piece.
- This grid would contain 3,460 total triangles.

Result

I tried to count the triangles by hand but lost count frequently and gave up. With the help of AI, I analyzed the grid using a systematic algorithm to arrive at the final figure of **338 Triangles**. Interested / skeptical readers are highly encouraged to check for themselves.