8.G.B Sizing up Squares

Task

a. Below is a picture of a right triangle on a square grid:



In the next picture, quadrilaterals have been built on each side of the triangle:



i. Explain why the quadrilateral sharing one side with the hypotenuse of the triangle is a square.

ii. Find the areas of the three squares in the picture.

iii. Is the sum of the areas of the squares on the legs equal to the area of the square on the hypotenuse?

b. Below is a second right triangle, with quadrilaterals built on the three sides of the triangle.



i. What are the areas of the two squares built on the legs of the triangle?

ii. Find the area of the quadrilateral sharing one side with the hypotenuse of the triangle.

iii. The quadrilateral sharing one side with the hypotenuse is a square. Is its area equal to the sum of the areas of the squares built on the triangle legs?



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