

$$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$$

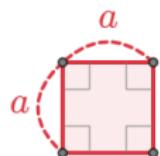
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▶ Start ▶ End

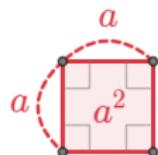
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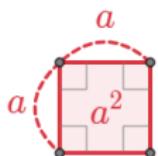


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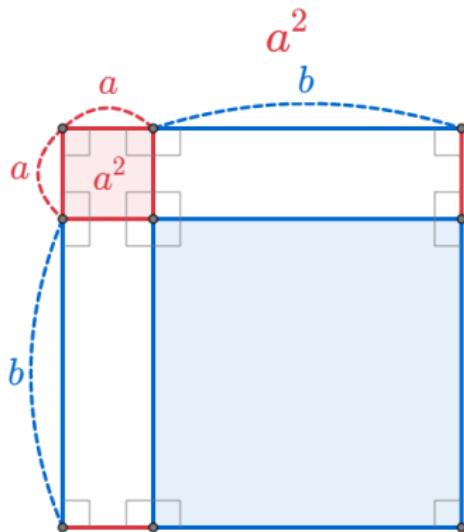
▶ End

$$a^2$$



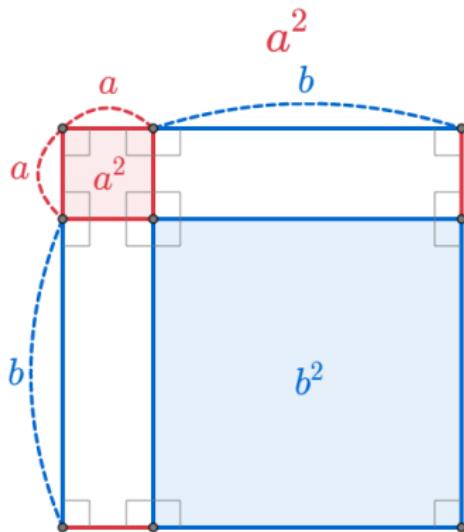
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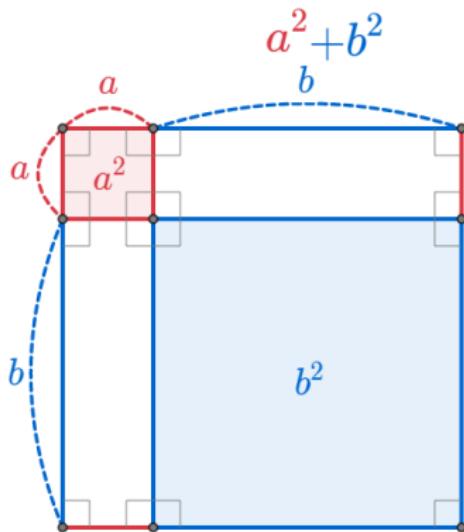
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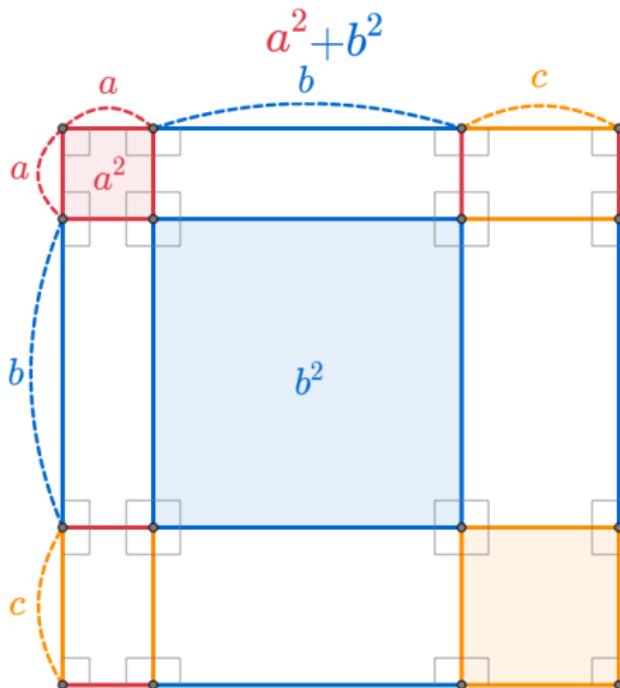
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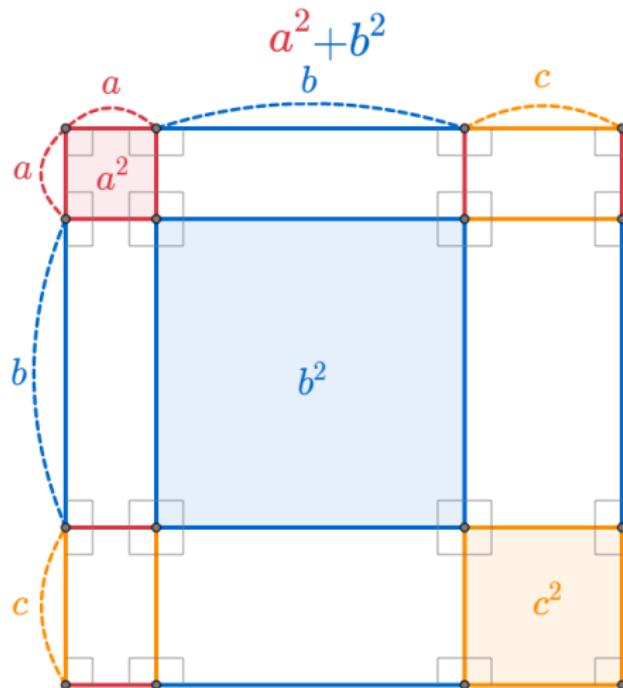
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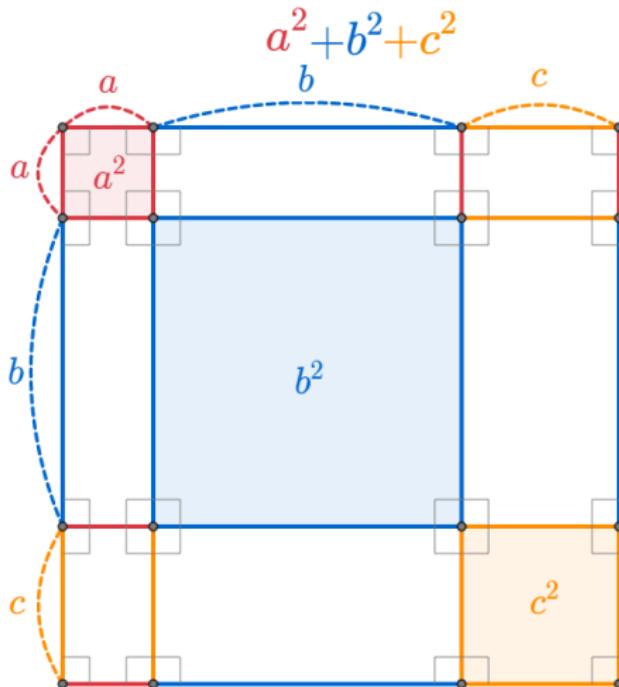
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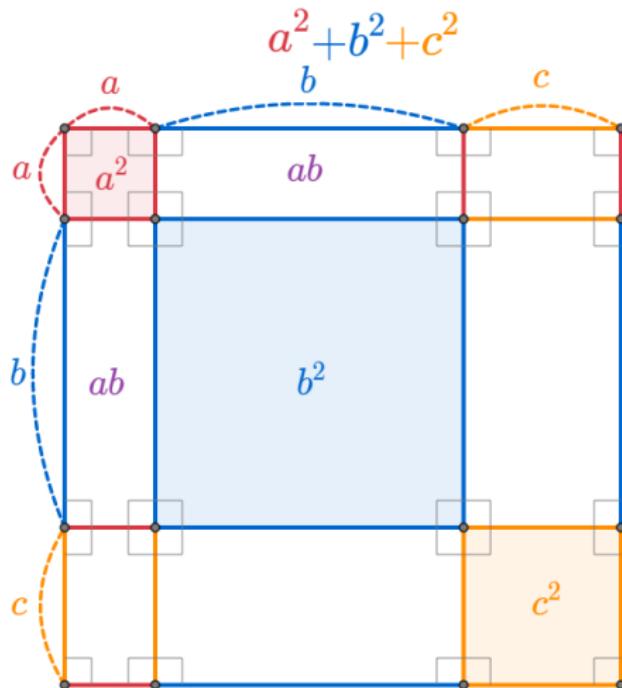


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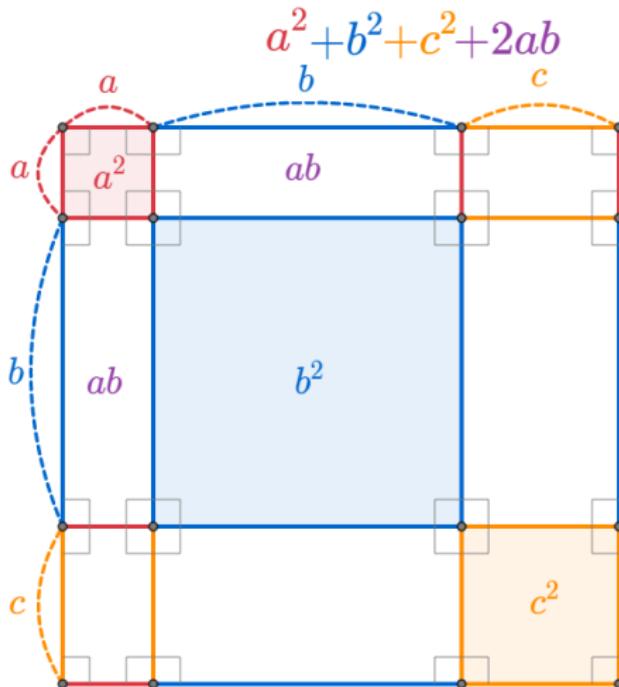


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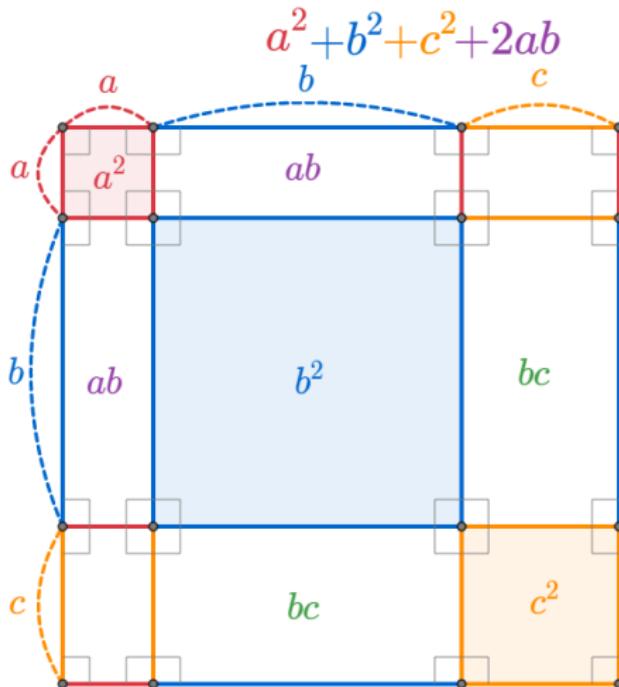
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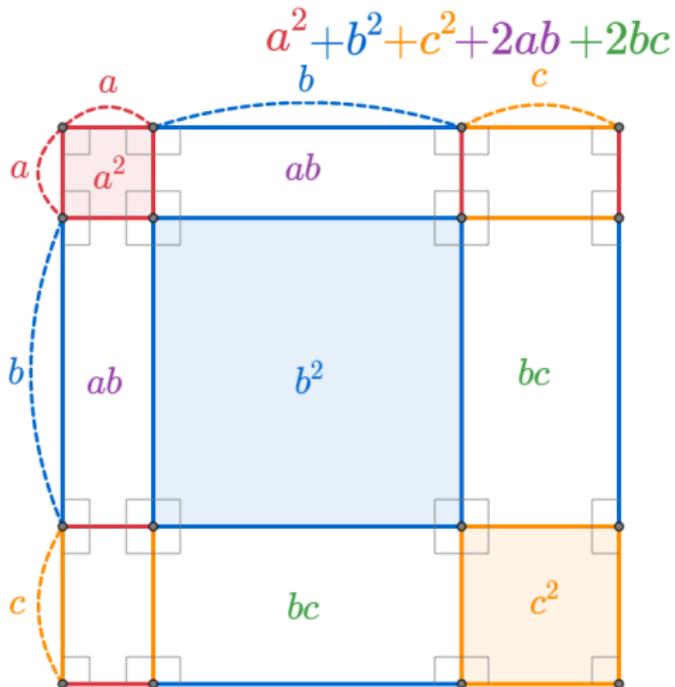
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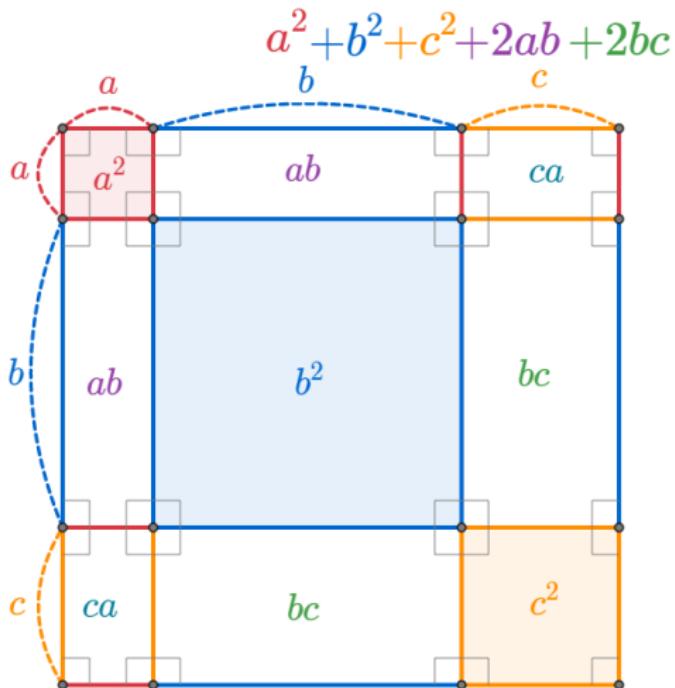
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The diagram shows a 3D cube representing the expansion of $(a+b+c)^2$. The total volume is divided into several regions labeled with terms from the expanded formula:

- a^2 : Red dashed ellipsoid on the left face.
- b^2 : Blue solid rectangle on the middle face.
- c^2 : Orange solid rectangle at the bottom right.
- ab : Purple labels on the top and bottom faces.
- bc : Green labels on the front and back faces.
- ca : Yellow labels on the left and right faces.
- a , b , c : Labels for the edges of the cube.

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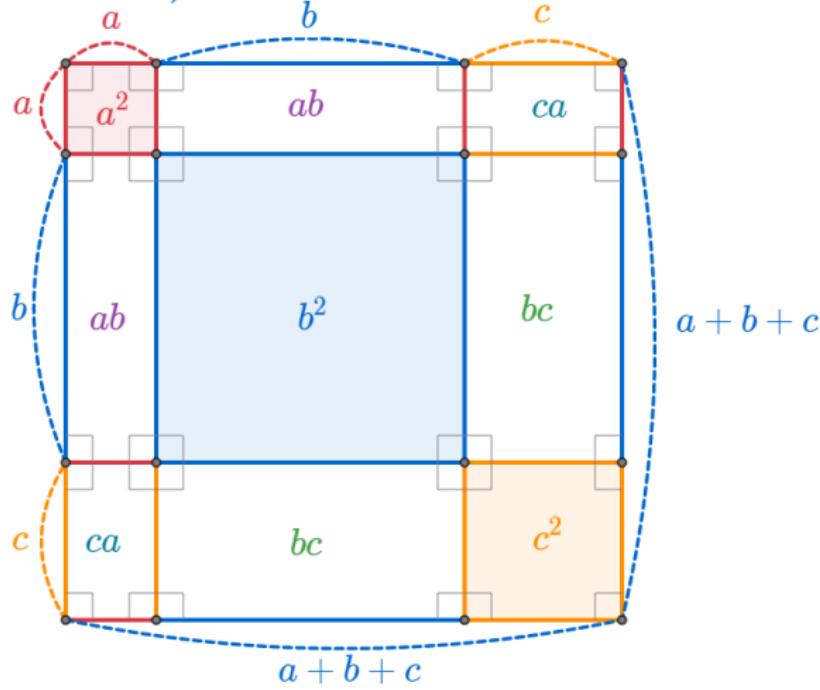
The figure illustrates the geometric interpretation of the algebraic identity $(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$. A large square with side length $a+b+c$ is divided into several regions. The total area is represented by the expression $a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$, where each term corresponds to a specific region's area:

- a^2 : Top-left corner red square.
- b^2 : Middle horizontal blue rectangle.
- c^2 : Bottom-right corner orange square.
- ab : Top-middle purple rectangle and bottom-middle purple rectangle.
- ca : Top-right yellow rectangle and bottom-left yellow rectangle.
- bc : Middle-right green rectangle and middle-left green rectangle.
- Three additional ab terms: The three vertical columns of four small squares each, which are not explicitly labeled but represent the remaining ab terms in the expansion.

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▶ Start ▶ End

$$(a + b + c)^2 = \cancel{a^2} + b^2 + \cancel{c^2} + 2ab + 2bc + 2ca$$



$$(a+b+c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$$

Github:

<https://min7014.github.io/math20210306001.html>

Click or paste URL into the URL search bar,
and you can see a picture moving.