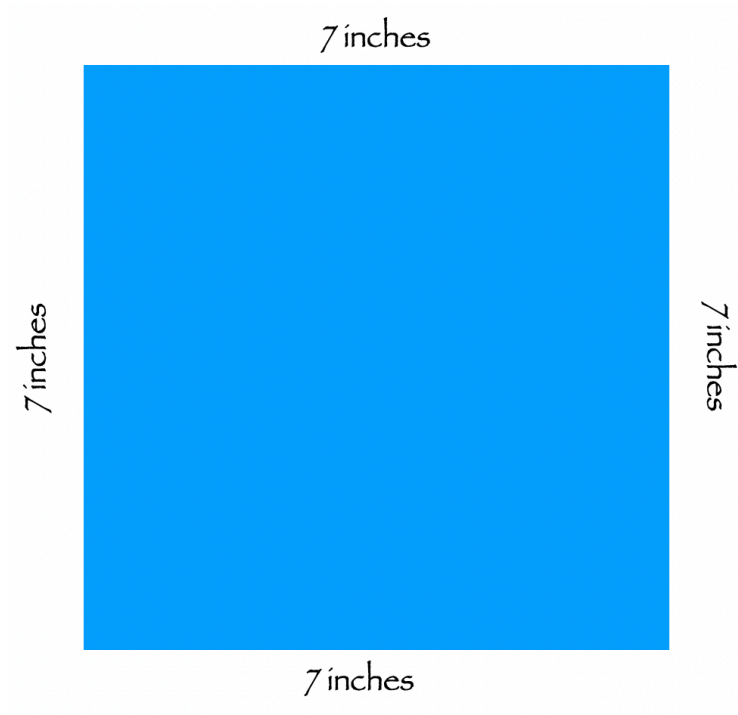


Unit 6 - Classwork 3 Pythagorean Theorem

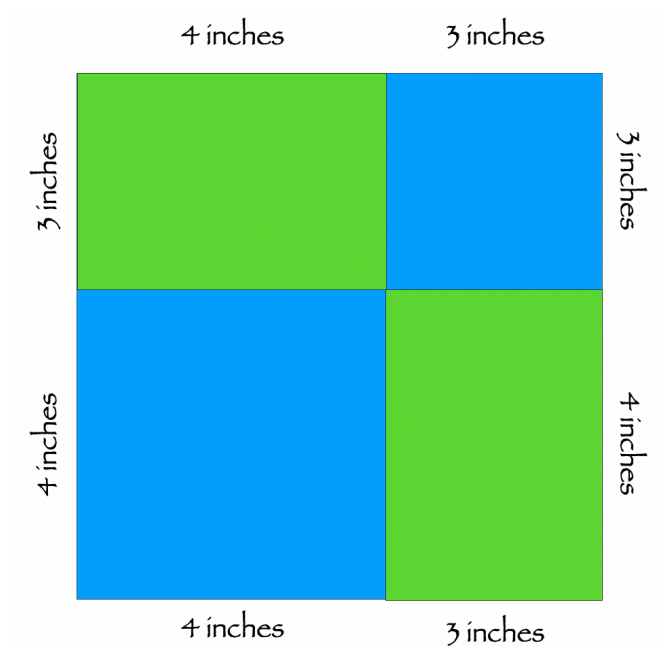
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In order to answer the following five questions, read pages 1 — 13 in Unit 6.

1. In the blue square pictured below, what is the area of the square? Show your work.

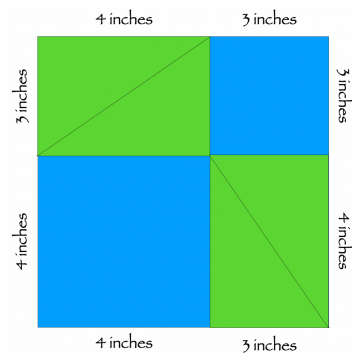


2. In the image below, the blue square is partially covered by two green rectangles, and the areas that aren't covered by the green rectangles are two smaller blue squares.

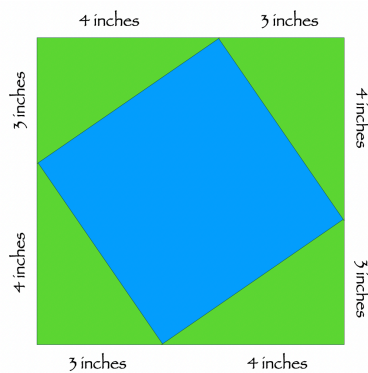


- (i) What is the area of each green rectangle? Write it in the image above, and show your work below.
- (ii) What is the area of the smallest blue square? Write it in the image above, and show your work below.
- (iii) What is the area of the larger blue square? Write it in the image above, and show your work below.
- (iv) What is the total area that *isn't* covered by the green rectangles? Show your work. (Hint: Add up the areas of the two smaller blue squares.)

3. In the image below, each green rectangle is evenly divided into two congruent triangles. What is the area of each triangle? Show your work.

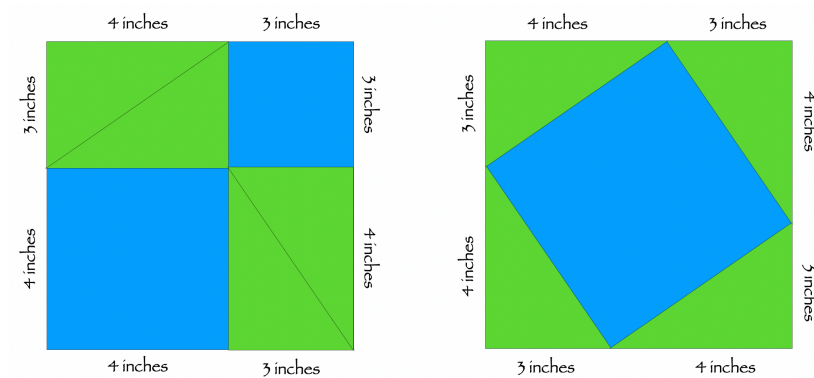


4. In the image below, the four green triangles are rearranged on top of the big blue square, and the area that they don't cover is a smaller blue square.



- (i) What is the area of the smaller blue square? Write it in the image above, and show your work below. (Note: There is more than one way of solving the problem.)
- (ii) On the smaller blue square, what is the length of each side? Write it in the image above, and show your work below.
- (iii) On each green triangle, how long is the longest side? Explain your answer.

5. Consider the two images below



- (i) In the images above, write the area of each blue square.
- (ii) What is the relationship between the areas of the blue squares on the left and the area of the blue square on the right?
- (iii) According to the Pythagorean theorem, if a right triangle has sides that are a units long, b units long, and c units long, then $a^2 + b^2 = c^2$. In our example, the two shorter sides of each green triangle are 3 inches long and 4 inches long, such that $a = 3$ and $b = 4$. Therefore, what is c^2 ? Show your work below.
- (iv) According to the Pythagorean theorem, if a right triangle has sides that are a units long, b units long, and c units long, then $a^2 + b^2 = c^2$. In our example, the two shorter sides of each green triangle are 3 inches long and 4 inches long, such that $a = 3$ and $b = 4$. Therefore, what is c ? Show your work below. (Note: $c = \sqrt{c^2}$.)