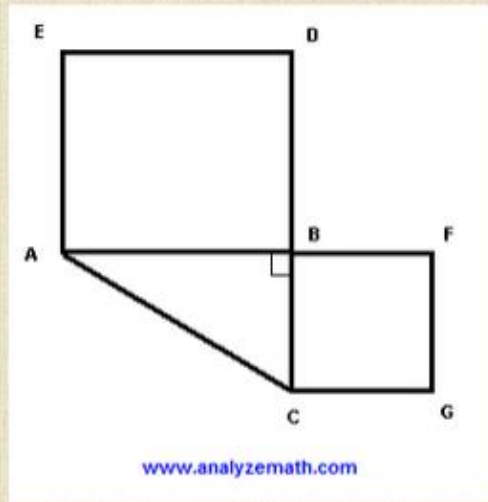Answer 56

56. In the figure below ABC is a right triangle. ABDE is a square of area 200 square inches and BCGF is a square of 100 square inches. What is the length, in inches, of AC?

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A) 10√3
B) 10√2
C) 300
D) 10
E) 15

Since ABDE is a square and has an area of 200 in², the length of one side (AB) is:

$$AB^2 = 200 \quad AB = \sqrt{200} \quad AB = \sqrt{100 * 2} \quad AB = 10\sqrt{2}$$

Similarly, BCGF is a square with an area of 100 , so side BC is going to be 10.

Then, use the Pythagorean Theorem to solve for AC:

$$AC^2 = (10\sqrt{2})^2 + 10^2$$

$$AC^2 = 100 * 2 + 100 \quad AC^2 = 200 + 100 \quad AC^2 = 300$$

$$AC = \sqrt{300} \quad AC = \sqrt{100 * 3} \quad AC = 10\sqrt{3}, \text{ so Answer A.}$$