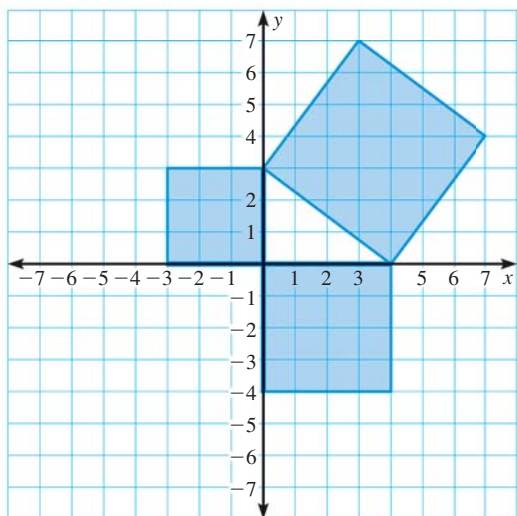# PROBLEMS INVOLVING THE PYTHAGOREAN THEOREM ON TAKS

Below are examples of problems involving the Pythagorean theorem in multiple choice format. Try solving the problems before looking at the solutions. (Cover the solutions with a piece of paper.) Then check your solutions against the ones given.

1. What is the area of the largest square in the diagram?

A 5 units^2

B 16 units^2

C 22 units^2

D 25 units^2

Solution

The area of the largest square is the sum of the areas of the two smaller squares, which have side lengths of 3 and 4.

$$\text{Area of largest square} = 3^2 + 4^2$$
$$= 9 + 16$$
$$= 25$$

The correct answer is D.

Ⓐ   Ⓑ   Ⓒ   Ⓓ

2. Three square tiles are arranged to form a right triangle. The smallest tile has a perimeter of 20 centimeters, and the largest tile has a perimeter of 32 centimeters. To the nearest centimeter, what is the perimeter of the third tile?
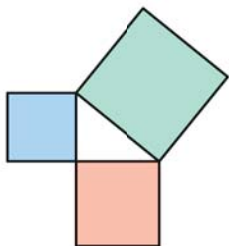
F 22 cm

G 24 cm

H 25 cm

J 38 cm

Solution

The side length of the smallest tile is $\frac{20}{4} = 5$ cm.

The side length of the largest tile is $\frac{32}{4} = 8$ cm.

Use the Pythagorean theorem to find the side length of the third tile.

$$5^2 + b^2 = 8^2$$
$$b^2 = 39$$
$$b = \sqrt{39}$$

So, the perimeter of the third tile is $4\sqrt{39} \approx 25$ cm.

The correct answer is H.

Ⓕ   Ⓖ   Ⓗ   Ⓙ