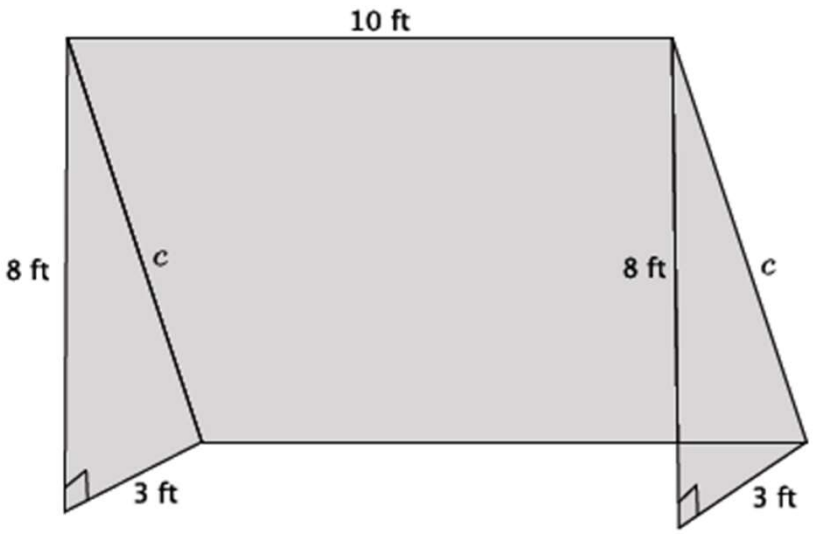
Application of Pythagorean Theorem

1. The diagram below is a representation of a soccer goal.



a) Determine the length of the bar, c, that would be needed to provide structure to the goal. Round your answer to the tenths place.

b) How much netting (in square feet) is needed to cover the entire goal?

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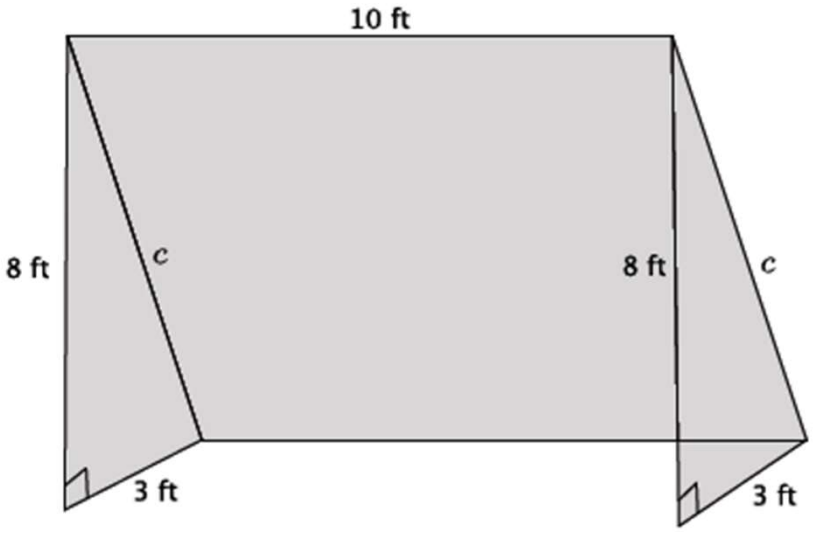

a) Determine the length of the bar, c, that would be needed to provide structure to the goal. Round your answer to the tenths place.

Let c ft. represent the hypotenuse of the right triangle.

$$8^2 + 3^2 = c^2$$
$$64 + 9 = c^2$$
$$73 = c^2$$
$$\sqrt{73} = \sqrt{c^2}$$
$$8.5 = c$$

The length of the bar that provides structure for the goal is approximately 8.5 ft.

b) How much netting (in square feet) is needed to cover the entire goal?

The areas of the triangles are each 12 ft^2. The area of the rectangle in the back is approximately 85 ft^2. The total area of netting required to cover the goal is approximately 109 ft^2.