Lesson 18: Applications of the Pythagorean Theorem

Classwork

Exercises

1. The area of the right triangle shown below is 26.46 in\(^2\). What is the perimeter of the right triangle? Round your answer to the tenths place.
2. The diagram below is a representation of a soccer goal.

![Diagram of a soccer goal with dimensions: 10 ft, 8 ft, 3 ft, 8 ft, and c.]

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?
3. The typical ratio of length to width that is used to produce televisions is 4:3.

A TV with length 20 inches and width 15 inches, for example, has sides in a 4:3 ratio; as does any TV with length 4x inches and width 3x inches for any number x.

a. What is the advertised size of a TV with length 20 inches and width 15 inches?

b. A 42" TV was just given to your family. What are the length and width measurements of the TV?
c. Check that the dimensions you got in part (b) are correct using the Pythagorean theorem.

d. The table that your TV currently rests on is 30" in length. Will the new TV fit on the table? Explain.

4. Determine the distance between the following pairs of points. Round your answer to the tenths place. Use graph paper if necessary.
   a. \((7, 4)\) and \((-3, -2)\)
   b. \((-5, 2)\) and \((3, 6)\)
c. Challenge: \((x_1, y_1)\) and \((x_2, y_2)\). Explain your answer.

5. What length of ladder is needed to reach a height of 7 feet along the wall when the base of the ladder is 4 feet from the wall? Round your answer to the tenths place.