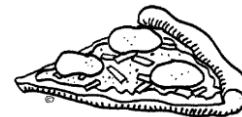


This work sample has been revised.

Name _____ Teacher _____ Date _____

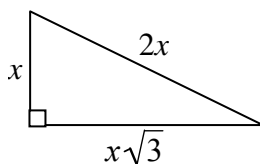
Pizza Box Design



Formulas you might use:

The formula for the area of an equilateral triangle with side, s : $A = \frac{s^2 \sqrt{3}}{4}$

The formula for the area of a regular hexagon with side length, s : $A = \frac{3\sqrt{3}}{2} \cdot s^2$



Pizza Place's most popular pizza size is 14 inches in diameter. The box that holds this pizza is a rectangular prism with dimensions 15" x 15" x 1.25". Because of the surface area of the box, the box company charges the Pizza Place \$1.00 for each pizza box. The manager claims that a 1.25" tall hexagonal-based prism box designed to hold a 14 inch pizza would have a smaller surface area, and as a result would cost less.

1. Design a new hexagonal-based box that could hold a 14-inch in diameter pizza. Draw a diagram and label the dimensions.

2. The manager wants to know if his claim is correct. Determine
- which prism has the smaller surface area
 - the cost of the new pizza box based on the price for the old box

The cost of labor is the same for either box.

Justify your work using words, number and/or diagrams.

The _____ pizza box has the smaller surface area.

The pizza store is charged _____ for the smaller pizza box.

3. Justify how you know the hexagonal box costs more or less than the rectangular box using specific measurements from both boxes.