

Piece It Together

Level D

Soccer balls are made in different sizes for different age-group soccer leagues. There are three standard balls: a size 5, a size 4, and a size 3 soccer ball. Major League Soccer and the World Cup use a size 5 soccer ball. According to the rulebook, the circumference (around the equator of a sphere) of a size 5 soccer ball, when fully inflated, must be between 27 and 28 inches.

The top-selling soccer ball is made by **Everkick**. The design pattern of this ball is composed of regular pentagons and hexagons. Using geometry, determine the lengths of the sides of a pentagon and hexagon from a size 5 **Everkick** soccer ball. Explain the process you use to determine the dimensions.



The **GoalScorer** ball is second on the list of best-selling soccer balls. It has a different design pattern. The design pattern of this ball is composed of pentagons, triangles, and squares. Using geometry, determine the lengths of the sides of a pentagon, square, and triangle from a size 5 **GoalScorer** ball. Explain the process you used to determine the dimensions.



