Packaging Golf Balls

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"when will I ever use this?"

MATH TOPICS ADDRESSED:
- Tessellations
- Three-dimensional figures
- Ratios
- Units of measure
- Formulas for surface area and volume

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Randy Hall

Golf balls are generally sold three to a package (see the photograph at right). They are also packaged by the dozen and sold as a four pack. Various factors can affect packaging, such as shipping to retailers, display space available, and cost of materials. Manufacturers, concerned with the best design for a package, have become more creative with package designs.

QUESTIONS

1. A golf ball has a diameter of about 1.68 inches (or 42.7 mm). Consider the solids (a prism, a cone, and so on). Which shape would be best to use when packaging a single golf ball? Defend your answer. Make a scale drawing of the package using mathematical drawing tools.

2. The photograph shows a package containing three golf balls. The *girth* of the package is the distance around one set of faces. Which is a larger measure for the package, its girth or its height? How can you tell? Are there other ways to package a set of three golf balls?

3. Use drawing tools or graph paper to sketch at least two different ways that a box can be designed to contain four of the packages of three. In the sketch, show how these packages are arranged in the box. Draw nets for each new box design. Cut out the nets. Use scissors and tape to create the box.

4. Determine the length, width, and height of a package containing three golf balls. Calculate the total surface area for each new box, which holds a dozen golf balls.

5. Calculate the volume of each new box that holds twelve golf balls.

6. The length:width:height ratio (*l*:*w*:*h*) for the package of three in the photograph is 1:1:3. For each new box, designate a base. Then give the *l*:*w*:*h* ratio of each new box.

For dimensions of a golf ball, see http://www.wolframalpha.com/input/?i=golf+ball+diameter.

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The solutions are online with Math for Real at **www.nctm.org/mtms**.