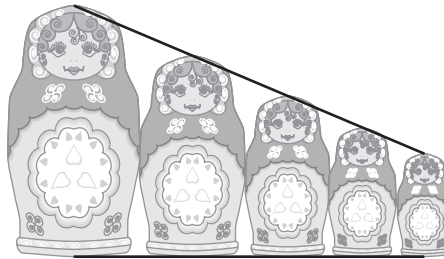


## ***Real-Life Application: When Will I Ever Use This?***

For use with pages 506–513

### **Matreshkas**

Matreshkas are Russian nesting dolls. A small doll, perhaps the size of a thimble, is placed inside a slightly larger doll. That doll is placed inside a larger doll and so on until several dolls are nested inside. The dolls are usually made from wood and twist apart around the waist to reveal the next doll. According to Russians, the wife of a Russian patron brought the idea from Japan. Some Japanese indicate that a Russian monk introduced the doll to Japan. Whatever the case, in the 1890s, a professional artist in Russia made the first sketches of Matreshka. Skilled craftsmen carve the dolls from wood. They rely on their experience rather than measurement.



The height of the first doll is 5 inches. The height of the second doll is 4 inches. The height of each consecutive doll is scaled down with the same ratio.

1. What is the scale factor?
2. What is the height of the third doll?
3. How many dolls are nested inside the first doll if the last doll is about 1 inch high?
4. How many dolls would be nested inside the first doll if the scale factor were reduced to 75%?