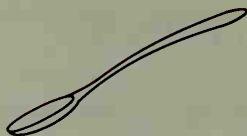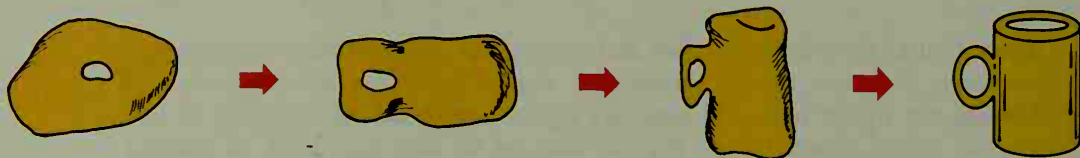Orange   Teaspoon   Brick

In fact, a doughnut is topologically equivalent to a coffee cup. (See the diagrams below.) For this reason, a topologist has been humorously described as a mathematician who can't tell the difference between a doughnut and a coffee cup!

Think of the objects as made of modeling clay.   Push thumb into clay to make room for coffee.

Exercises

In each exercise tell which figure is *not* topologically equivalent to the rest. Exercises 1 and 2 show plane figures.

1. a.   b.   c.   d.

2. a.   b.   c.   d.

3. **a.** solid ball	**b.** hollow ball	**c.** crayon	**d.** comb
4. **a.** saucer	**b.** house key	**c.** coffee cup	**d.** wedding ring
5. **a.** hammer	**b.** screwdriver	**c.** thimble	**d.** sewing needle

6. Group the block numbers shown into three groups such that the numbers in each group are topologically equivalent to each other.

7. Make a series of drawings showing that the items in each pair are topologically equivalent to each other.
   a. a drinking glass and a dollar bill   **b.** a tack and a paper clip