

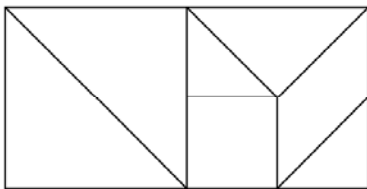
## *Measurement Concepts with Tangrams—Using Nonstandard Units*

Use your tangram pieces for these problems.

1. Arrange the 7 tangram pieces in order by their perimeters.
2. Arrange the 7 tangram pieces in order by their areas.
3. There are three sizes of triangles in your Tangram set. Use the two small triangles and the medium triangle for this activity. Using all three triangles (you must use all three each time), build the polygons listed below. Sketch your solution to each one.
  - Square
  - Rectangle that is not a square
  - Parallelogram that is not a rectangle
  - Triangle
  - Trapezoid
4. Without using measuring tools, can you determine which of the polygons in #3 has the greatest area?

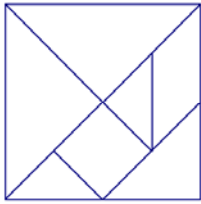
Why do you think you were asked this question?

5. Use all 7 tangram pieces to make a non-square rectangle as shown:



- Describe a way to find the area of the rectangle without using a ruler.
- Describe another way to find the area.

The 7 tangram pieces can be arranged to form a “Tangram Square” as shown:



6. Here is a Tangram Square with part of it shaded in. The inside dot is in the center of the square. The other dots are the midpoints of the sides.



- How many copies of the medium-sized tangram triangle fill the shaded region? Describe how you found your answer.
  - How many copies of the small tangram triangle fill the shaded region? Describe how you found your answer.
  - How many copies of the tangram parallelogram fill the shaded region? Describe how you found your answer.
  - If the area of the parallelogram is 1, what is the area of the shaded part?
  - What fraction of the whole Tangram Square is the parallelogram?
7. What is the ratio of the small tangram square piece to the large Tangram Square?