

Lesson 5-9 • Group 1

Reinforce Understanding**5.9 Small Group • Group 1**

With my small group, I can find the area of a regular polygon by decomposing it into triangles — one step at a time, with support.

Worked model

My hexagon has 6 equal sides. Each side is 6 feet, and each center triangle has a height of 5.2 feet.

1. First I find one triangle: $A = \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 6 \times 5.2$.
2. I multiply: $6 \times 5.2 = 31.2$, then $\frac{1}{2} \times 31.2 = 15.6$ square feet.
3. A hexagon has 6 sides, so it has 6 equal triangles.
4. I multiply: $6 \times 15.6 = 93.6$. So the total area is 93.6 square feet.

Practice

Complete each exercise. Show the reasoning that supports your answer.

1. Each regular polygon below is cut into congruent triangles by drawing a line from the center to every corner. Sort by how many triangles it makes.

Write the name of the correct group on each line.

Groups: More than 5 triangles 5 or fewer triangles

- _____ Regular hexagon
- _____ Regular octagon
- _____ Equilateral triangle
- _____ Square
- _____ Regular pentagon

2. Complete the table.

Complete the table. Show how you found each value.

Polygon	Number of Triangles	Triangle Base	Triangle Height	Area of One Triangle	Total Area
Hexagon	6	6 ft	5.2 ft		
Pentagon	5	8 ft	5.5 ft		
Square	4	5 ft	4 ft		
Octagon	8	4 ft	4.8 ft		

Show your work
