Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Dinner Party!**

Activity Sheet

Imagine you are hosting a dinner party, and you have to decide how to arrange your dining room tables. The tables are octagonal in shape. Assume that each side of each octagon is space for **1 person** to sit and enjoy dinner.

Set 1 Set 2 Set 3

Use the diagram above to answer the following questions:

1. Compute the perimeter (the number of available seats) of each set of tables above.
2. Determine the perimeter of the eighth set, assuming the same pattern as shown above.
3. Without constructing it, determine the perimeter of the 100th set, assuming the same pattern as shown above.
4. Write out your steps, so that anyone could follow your instructions and determine the perimeter of ANY set, assuming the same pattern as above.
5. Find a different way to computer the perimeter of any set of tables in the pattern. Be sure to explain how you know that the method works.