

Name: _____
 Date: _____
 Period: _____

Lab: WAVE MECHANICAL VIEW OF THE HYDROGEN ATOM

Std 1L

Objectives:

In this experiment, you will

- prepare a probability graph from your data, and
- relate your results to the electron-cloud model of the atom.

EQUIPMENT

fine-point felt-tip marker or dull lead pencil
 target

PROCEDURE

1. Count the number of marks in each numbered area of the target. Record your observation in the table.
2. Drop your marker or pencil from height of about 1 m onto the target. Try to hit the center. Repeat for a total of 100 trials.

Area	Number of Marks
1	
2	
3	
4	
5	

ANALYSIS

1. Count the number of marks in each numbered area of the target. Record your observations in the table.
2. Plot your data on the graph provided.

CONCLUSIONS

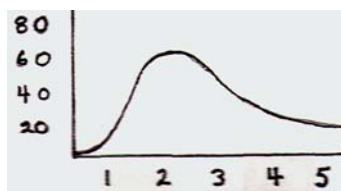
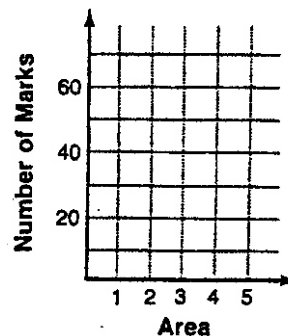
1. Before you dropped the pen or pencil, could you predict exactly where it would strike the target?

2. If you could not predict the exact spot where the pen would hit the target, could you predict the area within which it would hit?

3. How does the shape of the graph in the textbook compare to the shape of the graph below?

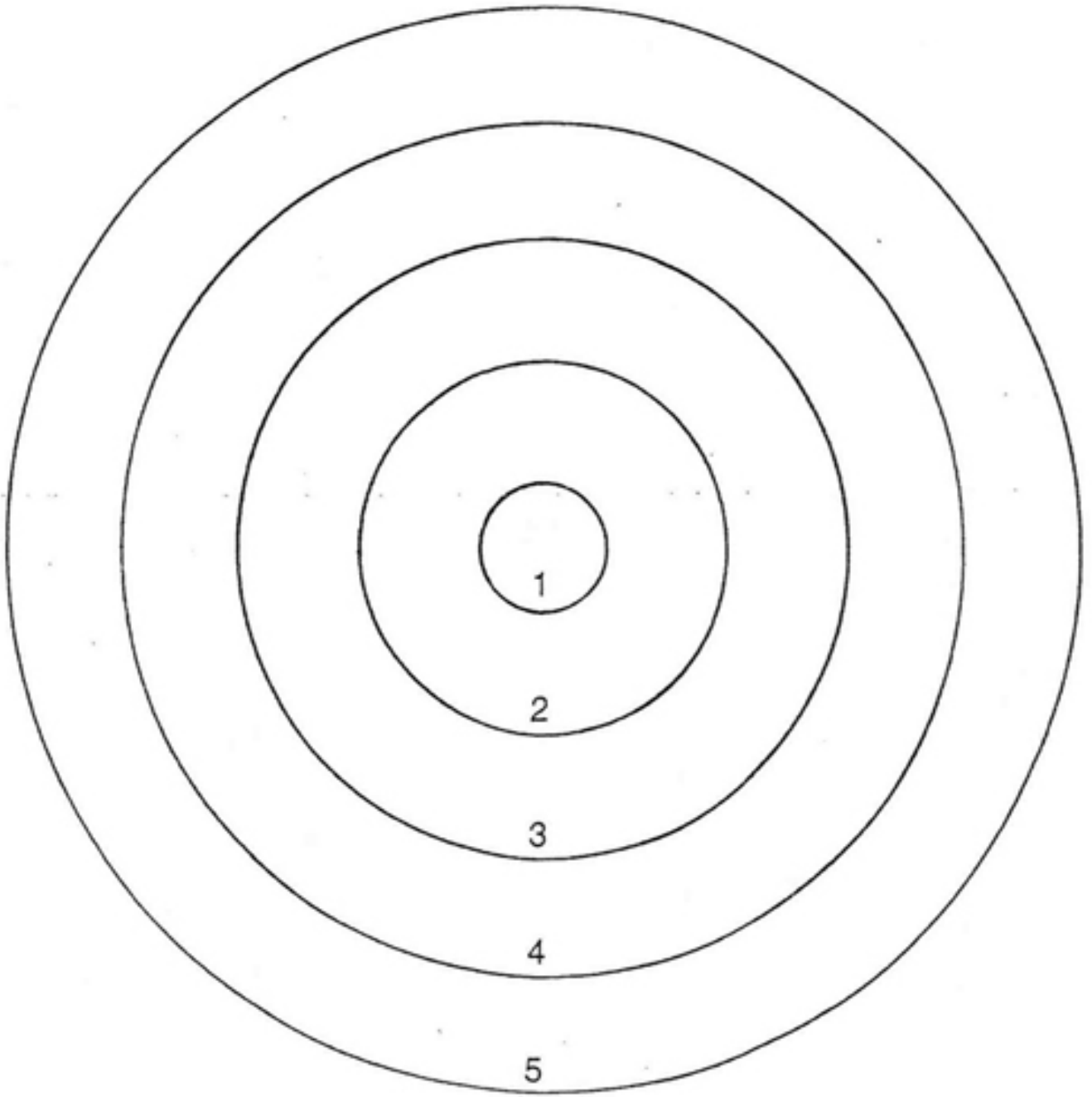
4. From your graph, which target area had the highest probability of being hit by the pen?

5. One pen or pencil made all of the dots on the target. How many electrons can make all of the "dots" that form the electron cloud we call an orbital?



<----- Compare your graph to this one
 (see questions 3 above)

Target



Number the circles above 1-5 with 5 being the outside circle.