

Name: _____
 Date: _____
 Period: _____

Lab: WAVE MECHANICAL MODEL OF THE HYDROGEN

ATOM (AKA the Quantum Mechanical Model)

Std 1

Objectives:

In this experiment, you will

- prepare a probability graph from your data, and
- relate your results (your target) to Fig 5.13 on p. 132 of text.

EQUIPMENT

1. fine-point felt-tip marker or dull lead pencil
2. target

PROCEDURE

1. YOU MUST BE STANDING and the target must be on a hard, flat surface on the floor. Drop your pencil from waist height. Try to hit the center of the target.
2. Try to drop the pencil the same way each time.
3. Repeat for a total of 100 trials.

ANALYSIS

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

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 your graph compare to the shape of the graph below question 5?

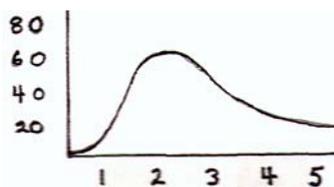
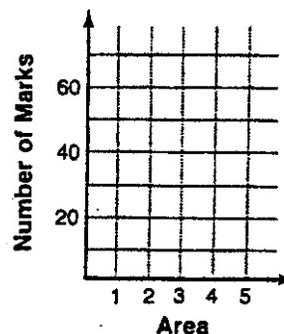
4. From your graph, which target area had the highest probability of being hit by the pen?

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?

Keep track of your hits in this table using slash marks and cross for each 5

Area	Number of Marks
1	
2	
3	
4	
5	

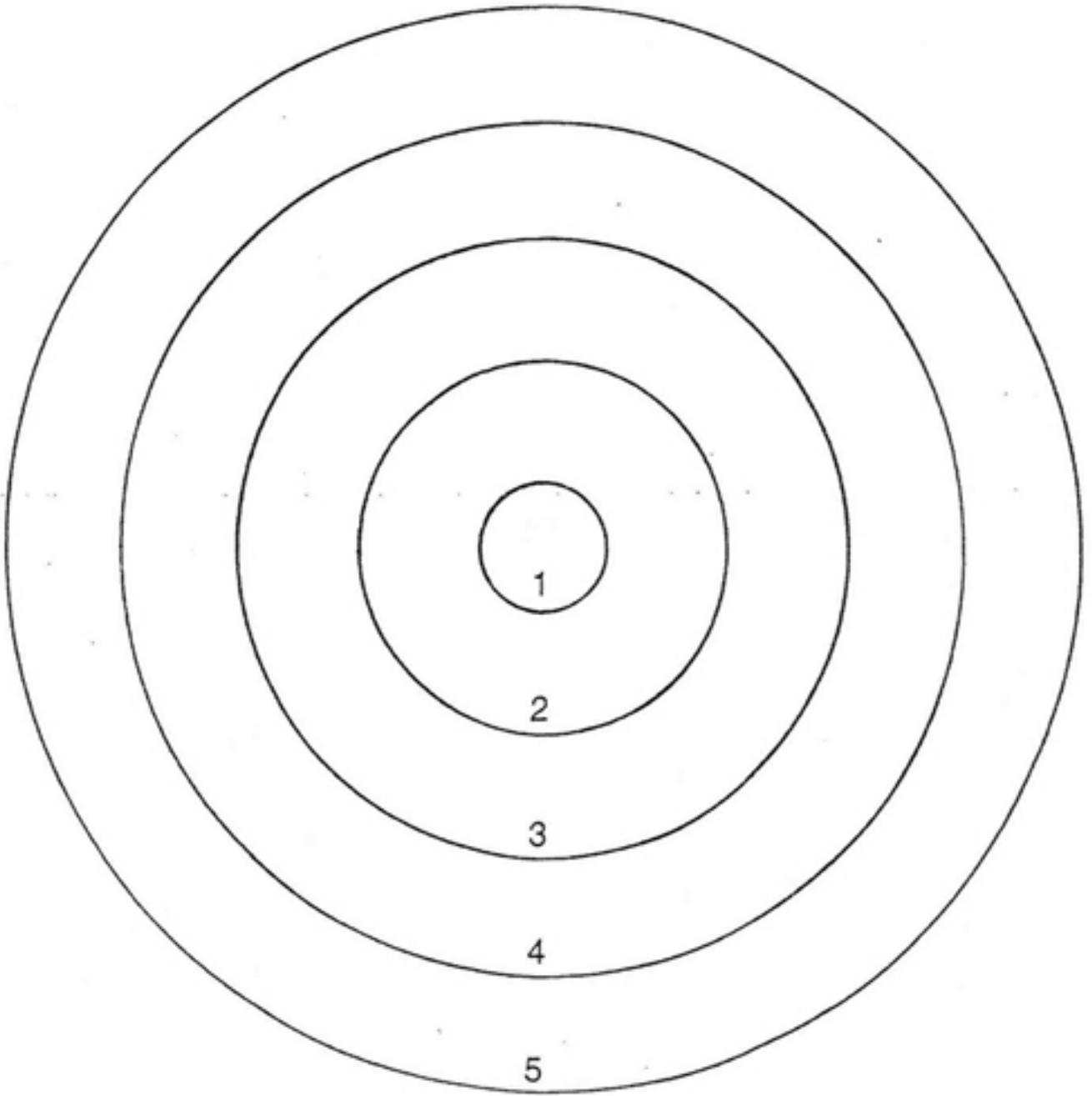
Make graph of your results here



(To be used with question 3 above)

<----- Compare your graph to this one

Target



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