The Crow and the Pitcher

NAME _____

In this activity, you will simulate the story of "The Crow and the Pitcher" using a graduated cylinder and marbles.

Fill your graduated cylinder with water, up to 100 mm height. You will be adding marbles until the water reaches a level of at least 120 mm—the level at which the crow can reach the water.

1. Before you begin the activity, make a prediction:

I believe that I will need to add _____ marbles in order to raise the water level to 120 mm.

2. Add the marbles one at a time and record the effect that each additional marble has on the water level. Complete the table.

NUMBER OF MARBLES (x)	RAISE OF WATER LEVEL (MM) (y)
0	
1	
2	
3	
4	
5	
6	

3. What is the raise of water level with no marbles added? Where will this point be located on a graph made from the data in the table?

4. Find the rate of change. What values are changing in the experiment? Which value change is dependent and which is independent?

5. How many marbles must be added to reach a level of 120 mm? How did you determine this?

6. How would you determine how many marbles are needed to reach any given level of water in the cylinder?

7. Continue adding marbles to the cylinder. Did anything unexpected occur? Describe your observations.

8. What are the limitations or restrictions on the number of marbles and on the level of the water?

9. Use your answers to Question 8 to identify the possible domain (πεδίο ορισμού) and range (σύνολο τιμών) for the relationship between the number of marbles and the water level.