The CONSTANT Chair

Equipment needed:

A chair
Meter stick or tape measure

Procedure:

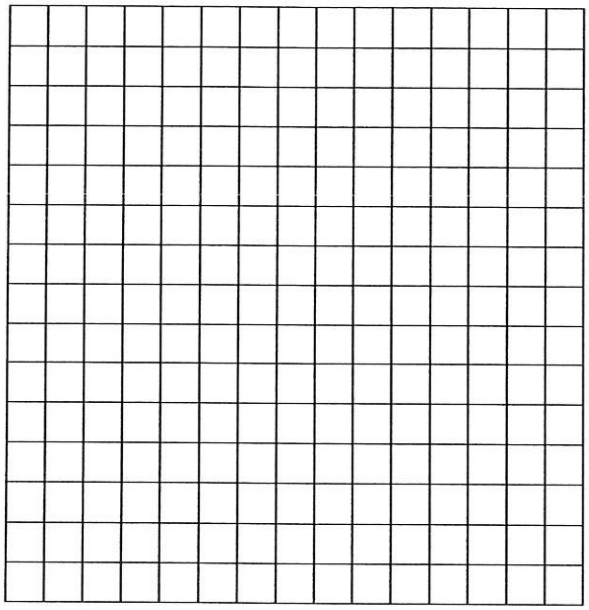
1. Place the chair's back against the wall.
2. As you move the leg of the tilted chair away from the wall every 10cm (call it the base measurement), record the height (distance from the floor to the point that the top of the chair touches the wall).
3. Record your data in the table below.

Data: Use the chart below to record your measurements.

Base (cm)	Height (cm)

1. Name the dependent variable:
2. Name the independent variable:
3. Name the domain of this situation:
4. Name the range of this situation:

Graph: Enter your data into L_1 and L_2 on your graphing calculator. Sketch the scatter plot below. Label the axes and identify the increments.



Analysis:

5. What mathematical model does this seem to represent?

6. Does the height change at the same rate as the base?

   Why?

7. Use the regression capabilities of your graphing calculator to find the curve/line of best fit. Record your equation.

   What does the y-intercept tell you in this situation?

8. Sketch that equation on the scatter plot above.

9. The back of the chair (assuming it is a straight line from the top of the chair to the bottom of the back legs) is always constant in this activity. What is the geometric term that explains its position when compared with the base and height in the problem?

10. Explain why the mathematical model you have chosen makes sense in this activity.