

Stacking Cups (One Stack)

Targets: *How many Styrofoam Cups are needed to make a stack as high as your teacher is tall?*

Model the stacking cups mathematically, by multiple representations.

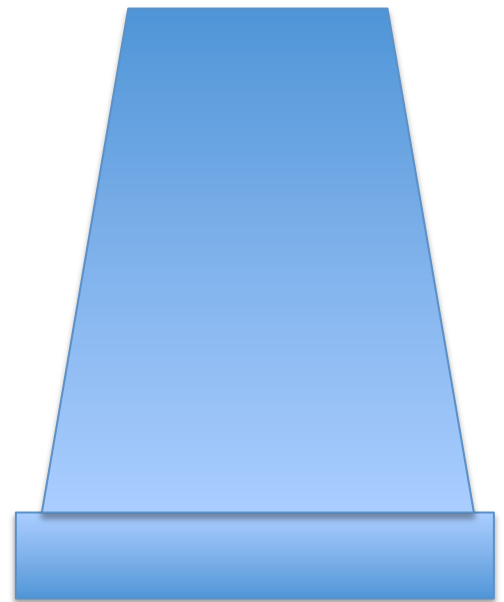
1) Guess: _____

2) What do you notice?

What do you wonder?

3) Calculations

Calculation #1_____



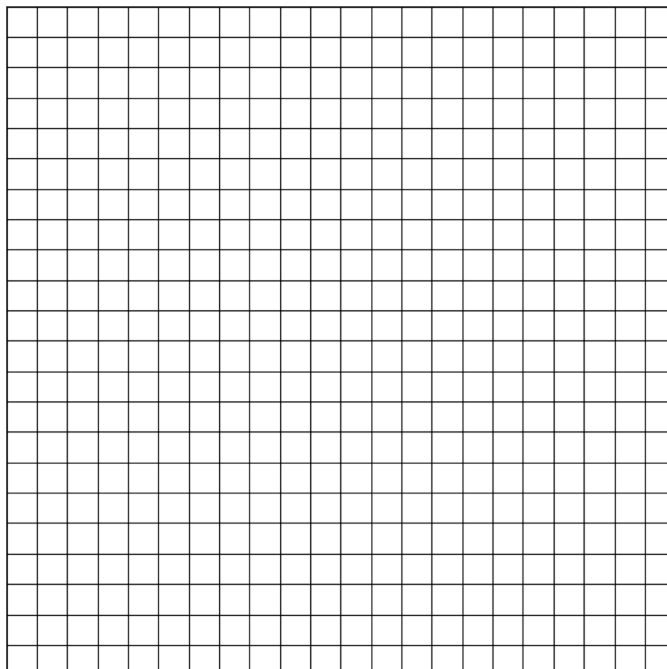
Stacking Cups

4) Describe the numerical pattern of the stacking cups. Include how you calculated the number of cups to equal your teacher's height.

5) According to your calculations, complete the data table below.

# of Cups	Height of Stack (cm)
1	
2	
3	
4	
5	
10	
15	
20	
	183

6) Plot your data points below.



7) Create a rule relating the height of the stack to the number of cups.

Things to consider:

How does the lip affect the height of the stack?

How does the base affect the height of the stack?

8) Use your equation above to determine how many cups it will take to reach the height of your teacher.

9) Analyze the relationship among the data table, graph, and equation.

a) What does the slope of your line in the graph represent?

Where can the slope be found in the data table?

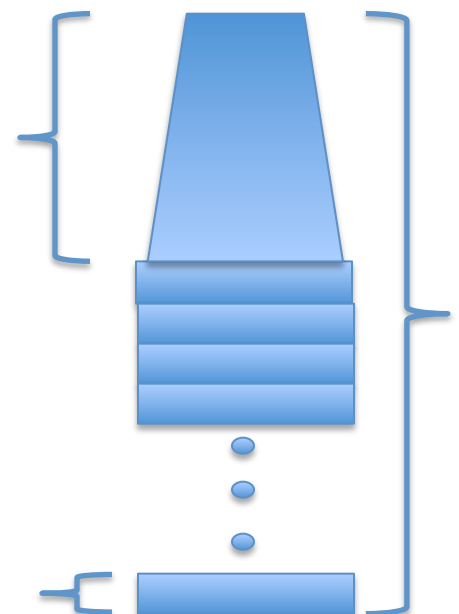
b) What does the y-intercept on the graph represent?

Where would this fit in the data table?

10)

a) Given the equation $y = mx + b$, place the y , m , and b appropriately in the diagram to the right.

b) What does x represent in the diagram?



2013/14

Name _____

Stacking Cups (Systems)

2013/14

Name _____

Stacking Cups (Exponential)