

Pre-Algebra A**Challenge #2: Rotten Robbie****Due Friday, 09/28/2012**

Name: _____

Date: _____

Per: _____

Rotten Robbie is the 50th kid at the end of a line of 50 students waiting to get their savory snacks for brunch. Being a rotten type of kid, Robbie sneaks up the line two places every time the cafeteria worker turns around to get a plate for the next student. So, for example, while the first student is being served, Rotten Robbie moves forward two places so that there are now two students behind him. If at some point it is only possible for Robbie to move one place, he does that instead of moving two places.

The BIG Question: How many students get served before Robbie?

1) Try simpler cases. For example, smaller numbers that are consecutive (like 10,11,12,13, 14,15 etc...)

2) Answer the BIG Question.

3) How many students would be served before Robbie if he were at the end of a line of:

- a. 37 students (including himself)
- b. 296 students(including himself)
- c. 1000 students (including himself)

d. Hint: Come up with the rule in part 4 and use it to answer part 3!

4) The BIGGER Question: Create a rule for how many students are served before Robbie starting at the end of a line of x students (including himself) and explain how the rule relates to what is happening in line. (This is really open ended. A “rule” could be words, an algebraic expression, a spreadsheet file with formulas, a computer program you code yourself, etc.)

Bonus:

How does the rule change if Robbie gets impatient and starts sneaking past 3 students at a time? 4 at a time? 7 at a time?

Remember, your answer is important, but explaining to me how you arrived at that answer is most important.

- Use a separate piece of paper and attach the problem as the cover sheet.
- Show all of your mathematics.
- Include any charts and graphs you used to solve the problem.
- Do not turn in your scratch paper.

Organize your work and solution sequentially so that it can be read from start to finish rather than scattered over a page.

Mathematics		
4	3	2
All four questions are answered correctly. Symbols, tables, diagrams, or graphs are used correctly and appropriately.	Solution is partially incorrect, or not all parts are answered.	Solution is mostly incorrect (2 or more questions out of 4 incorrect).
Communication		
4	3	2
All symbols, tables, diagrams, or graphs are explained in a clear manner. Each symbol is defined at the beginning and the solution is easy to follow. All tables, diagrams, or graphs have clear headings, labels, legend, etc. Final answers are clearly stated.	Symbols, tables, diagrams, or graphs are present but not explained. Final answers are clearly stated.	Symbols, tables, diagrams, or graphs are missing. Final answers are unclear.
Quality of Response		
2	1	
Solutions are organized, neat, and presented sequentially. Use of language is concise. Work is in a final draft form.	Solutions are unorganized or out of order or work is not in final draft form. Use of language is excessively verbose or not concise.	
NOTE: Late or rewritten responses will receive a 10% reduction.		
Bonus is worth 10% extra.		