Mathletes Problem of the Week #2

No One Number Trains

2	5	5
5	2	5
1	1	9	1

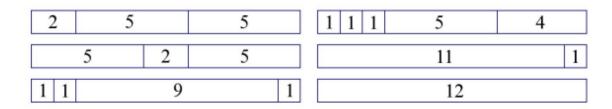| 1 | 1 | 1 | 5 | 4 |
| 11 | 1 |
| 12 |

You can use "rods" of whole number lengths to build "trains" that all have a common length. For instance, a "train of length 12" is a row of rods whose combined length is 12. You can see six examples above. Notice that the 2-5-5 train and the 5-2-5 train contain the same rods but are listed separately. Trains built from the same rods but in different orders are considered to be different trains.

a) If <u>you are not allowed to use any rods of length 1</u>, how many trains of length 5 can you make?

b) Again, <u>not using any rods of length 1</u>, try to determine how many trains you can make of length 6. Try trains of length 7. Try trains of length 8.

c) Do you notice any patterns? Try to use any patterns you find to predict the number of trains you can make of length 12, <u>using no rods of length 1</u>.

Solutions & Explanations: (Try one or try them all! Record your solutions and explanations below and on the back.)

Name _____ Class _____

(First and last name, please!)   Solutions due: October 3rd