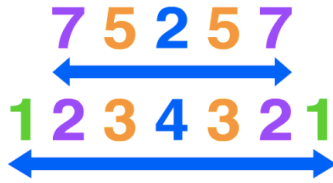


Mathletes Problem of the Week #3

Palindrome Syndrome



A palindrome is a word or phrase that reads the same forward or backwards. For example, *racecar* is a palindrome because it is the same word if you read it from left to right and from right to left. Palindromic numbers are just like palindromes. You get the same number if you read the number from left to right and from right to left. Let's explore palindromic numbers!

- We can call a one-digit number like 7 a palindromic number, because it is the same whether we read from left to right or from right to left. How many two-digit palindromic numbers are there? How do you know you have all of them?
- Now, try to figure out how many three-digit palindromic numbers there are. How do you know you have all of them?
- Now, try this. Write down any number that is more than one digit (for example, 68). Write down that number reversed beneath it (in our example that would be 86). Then add the two numbers together ($68 + 86 = 154$). Repeat the process with your new number until you get a palindromic number. ($154 + 451 = 605$; $605 + 506 = 1111$). Will this always work? Do some numbers take longer than others? Record what you discover!

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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 17th