

## Nerdo the Mathnificant The Human Calculator

### Overview

This is a trick which is numeric in the process and can show the power of adding 9's. However it is really just cool trick to do.

### Materials

Index card

Piece of paper or overhead sheet

Pen

calculator

### Steps

1. Give the piece of paper and a pen to a volunteer (V). This person could use the overhead instead if you want to which works best.
2. Have them write down a 6 digit number for everyone to see.
3. Next have them write another 6 digit number underneath to first number.
4. Now YOU write a third 6 digit number under the second. Each digit when added to the corresponding digit in the second number must equal 9.
5. Instruct V to write down another six digit number under the first three.
6. You repeat step 4 with the number which was just written down.
7. Give the V a calculator and tell them you are going to have a race. When someone else says go, they will add the numbers using the calculator and you will add them in your head.
8. Quickly take the first number subtract two from it and place the two at the front of the number. This is your total.

### Math

1. Let the first six digit number written down be represented by  $abcdef$ .
2. By rule the second number and the third number add to 999999.
3. By rule the fourth and fifth numbers add to be 999999.
4. Since we are adding all the numbers together we are adding 1999998 to the original number.
5. This means we are adding 2 short of 2000000 to the original number which becomes  $2abcde(f-2)$ .

### Example

2. 352718
3. 352718  
298714
4. 352718  
298714  
701285

5. 352718  
298714  
701285  
863104
6. 352718  
298714  
701285  
863104  
136895
7. 2352716