

# Four Number Trick

Take any four numbers (single digits) and add them together.

Arrange the original four digits in any order to form a four digit number.

Subtract the sum from this four-digit number, and you should get another four digit number.

Hide any one of the four digits in this new number (except a zero) and reveal the other three digits.

How can you determine the value of the hidden number?

## Explanation of the Trick

Add up the three digits that were revealed.

Then subtract that sum from the next multiple of 9 and that will be your hidden number.

Why does this work?

When you add up the four digits and subtract from the original number, you will get four digits whose sum is a multiple of nine.

When one number is hidden, you just add up the other three digits and subtract from the next multiple of nine to get the hidden number.

For example,  
take the numbers 6 7 1 3  
Added together they equal 17.

If you subtract 17 from 6713, you get 6696.  
If you hide one of the sixes, and reveal 6, 6, and 9.  
You would add up  $6+6+9 = 21$ .  
The next multiple of 9 (after 21) is 27.  
So  $27 - 21 = 6$ , the hidden number.

If you hide the 9, then the numbers revealed would be 6, 6, and 6.  
Add them together and you get 18.  
The next multiple of 9 is 27, which would give you a 9.

It doesn't matter what order the numbers are in. In the example above,

Take the same four numbers 6 7 1 3  
Added together gives you 17, of course.  
But this time subtract 17 from 1376, and you get 1359.

Again the four digits add up to a multiple of 9:  $1 + 3 + 5 + 9 = 18$ .  
So if you revealed 1, 5, and 9: add them up to get 15.  
Then the next multiple of 9 is 18, so the missing number is 3 ( $18 - 15$ ).

If the three numbers revealed were 1, 3, and 5 Then that sum is 9.  
The next multiple of 9 would be 18, so the hidden number is 9.

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