



This brainteaser was supplied by the Mathematical Olympiads for Elementary and Middle Schools (www.moems.org).

In a four-digit number, the sum of the digits is 10. All the digits are different. What is the largest such four-digit number?



Solution: 7210.

Although there are many combinations of digits with a sum of 10, only four of them consist of four different digits. Those combinations are 1234, 0145, 0136, and 0127.

Rearranging each of those to find the largest number that can be created requires putting the largest digit in the thousands place, the next largest in the hundreds, and so forth.

Consequently, the largest numbers that can be made are 4321, 5410, 6310, and 7210. Of those, the largest is 7210.