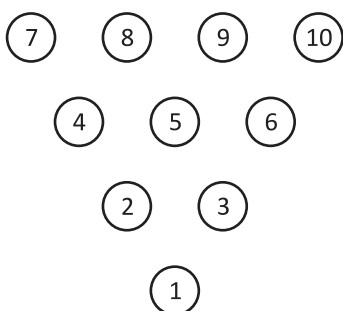




*This brainteaser was written by Derrick Niederman.*

Ten is a triangular number, because 10 objects can be neatly arranged in an equilateral triangle.



In general, a triangular number is a number that can be represented as a triangle with one object in the first row and each subsequent row contains one more element than the previous row. (From the picture above, you might notice that 1, 3, and 6 are also triangular numbers.)

Order the digits 1 through 9 so that the sum of any two adjacent numbers is a triangular number.



**Solution: 5 1 9 6 4 2 8 7 3.**

The sequence of triangular numbers is 1, 3, 6, 10, 15, 21, 28, .... For the purpose of this puzzle, though, only 3, 6, 10, and 15 are important. It's not possible to form any other triangular number by adding two single-digit numbers.

One way to get this sequence is to notice that 5 must be either the first or last digit, because there is only one number that can be added to 5 to form a triangular number, namely,  $5 + 1 = 6$ . Once you start with 5 and 1, the third number must be either 2 or 9. If you choose 2, you'll reach a dead end in a few steps. The sequence would continue as 5 1 2 8 7 3, and 3 has the same property as 5: there is only one number, 7, that can be added to it to make a triangular number, and it's already been used. Consequently, the third number must be 9, and then the sequence is uniquely determined: 5 1 9 6 4 2 8 7 3.