9 = 8 + 1
At a party of 9 there are 4 friends or 3 strangers. 9

9 = 3^3

Root of Gaussian prime 3.
Square \(9 = 3^2\)

\(9, 8\) the only consecutive powers after \(8^1\).
(Poveny by Mihăileanu in 2002.)

Also, \(3^2\) is neighbor to \(2^3\),
now known to be the only such neighbors.
Nine point circle: The only square

Every integer is the sum of nine cubes.
9 = \(1^2 + 2^2 + 2^2\) uniquely. The only square not the sum
9 = \(1! + 2! + 3!\) Lucas four non-zero squares.
9 = \(1^3 + 2^3\), sum of two cubes. 9 = \((1+2)^3\)
9 = \(2+2+5 = 3+3+3\), sums of 3 primes, smallest such.

9 is the smallest number of distinct squares
into which a rectangle can be divided
32 \(\times\) 33 = \(1, 4, 7, 8, 9, 10, 14, 15, 18\).

Nine is the only square which is
the sum of consecutive cubes.

Padovan
Cullen number. 9 = \(2 \cdot 2^2 + 1\)

4th Motzkin number. Pandiagonal number
\{Ways to shuffle five things (derangements)
and get everyone in the wrong place.
Number of vertex-regular tilings of the plane.
Any geometric \(\Delta\) has a rung-point circle.\}