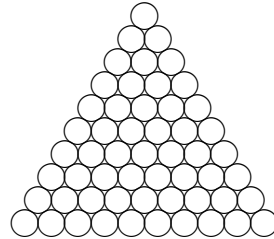
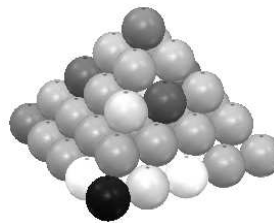


# 55 Fifty-Five LV



Corresponding ordinal: fifty-fifth.

The number 55 is a pyramidal number:  $1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 55$  so we can stack up these five squares to form a pyramid.



The number 55 is the twenty-eighth odd number and the thirty-eighth composite number.

As a product of primes:  $55 = 5 \cdot 11$ .

The number 55 has four divisors: 1, 5, 11, 55.

The number 55 is the forty-third deficient number:  $s(55) = 1 + 5 + 11 = 17 < 55$ .

As a sum of four or fewer squares:  $55 = 1^2 + 1^2 + 2^2 + 7^2 = 1^2 + 2^2 + 5^2 + 5^2 = 1^2 + 3^2 + 3^2 + 6^2$ .

As a sum of nine or fewer cubes:  $55 = 4 \cdot 1^3 + 3 \cdot 2^3 + 3^3 = 1^3 + 2 \cdot 3^3$ .

As the difference of two squares:  $55 = 8^2 - 3^2 = 28^2 - 27^2$ .

The number 55 appears in five Pythagorean triples: [33, 44, 55], [48, 55, 73], [55, 132, 143], [55, 300, 305], [55, 1512, 1513]. The second and fifth are primitive.

As a sum of three odd primes:  $55 = 3 + 5 + 47 = 3 + 11 + 41 = 3 + 23 + 29 = 5 + 7 + 43 = 5 + 13 + 37 = 5 + 19 + 31 = 7 + 7 + 41 = 7 + 11 + 37 = 7 + 17 + 31 = 7 + 19 + 29 = 11 + 13 + 31 = 13 + 13 + 29 = 13 + 19 + 23 = 17 + 19 + 19$ .

The number 55 is the tenth triangular number:  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$ .

## 2 Chapter 55 Fifty-Five LV

The number 55 is also the tenth Fibonacci number: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55. It is the largest Fibonacci number that is also a triangular number (Luo Ming, *Fib. Quart.* **27** 98–108, 1989).

The numbers  $n$  such that  $s(n) = 55$  form the set  $s^{-1}(55) = \{36, 329, 473, 533, 629, 713\}$ .

The number 55 is 5 times the 5<sup>th</sup> prime.

The number 55 is the largest number that cannot be written as a sum of distinct primes of the form  $4n + 3$ . (David G. Wells, *Prime numbers: the most mysterious figures in math*) How do you verify this?

At age 55, Benjamin Harrison was inaugurated as President of the United States.

At age 55, Grover Cleveland was inaugurated as President of the United States. This was his second term as President, but they were not consecutive terms.

At age 55, Warren Gamaliel Harding was inaugurated as President of the United States.

At age 55, Lyndon Baines Johnson was inaugurated as President of the United States.

There were 55 delegates attending the Constitutional Convention in 1787, and 39 signed the document. The only numbers  $n$  such that  $s(n) = 17$  are 55 and 39.

Aristotle described the heavens using 55 spheres.

For a few years, the speed limit on American highways was 55 mph.