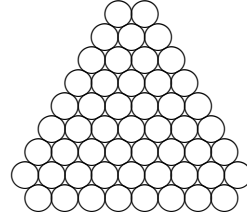


# 52 Fifty-Two LII



Corresponding ordinal: fifty-second.

The number 52 is the twenty-seventh even number and the thirty-sixth composite number.

As a product of primes:  $52 = 2^2 \cdot 13$ .

The number 52 has six divisors: 1, 2, 4, 13, 26, 52.

The number 52 is the forty-first deficient number:  $s(52) = 1+2+4+13+26 = 46 < 52$ .

As a sum of four or fewer squares:  $52 = 4^2+6^2 = 1^2+1^2+1^2+7^2 = 1^2+1^2+5^2+5^2 = 2^2 + 4^2 + 4^2 + 4^2 = 3^2 + 3^2 + 3^2 + 5^2$ .

As a sum of nine or fewer cubes:  $52 = 1^3 + 3 \cdot 2^3 + 3^3$ .

As a difference of two squares:  $52 = 14^2 - 12^2$ .

The number 52 appears in five Pythagorean triples [20, 48, 52], [39, 52, 65], [52, 165, 173], [52, 336, 340], [52, 675, 677]. The third and the last are primitive.

As a sum of two odd primes:  $5 + 47$ ,  $11 + 41$ ,  $23 + 29$ .

At age 52, Abraham Lincoln was inaugurated as President of the United States.

At age 52, Jimmy Carter was inaugurated as President of the United States.

There are 52 cards in a standard deck.

There are 52 white keys on a piano.

The number 52 is not the sum of the proper divisors of any number. Such a number is said to be *untouchable*. The previous two untouchable numbers are 5 and 2. Technically, the number 28 is also considered to be untouchable because it is not the sum of the proper divisors of any *other* number. But that's just because the definition of *untouchable* isn't quite right.

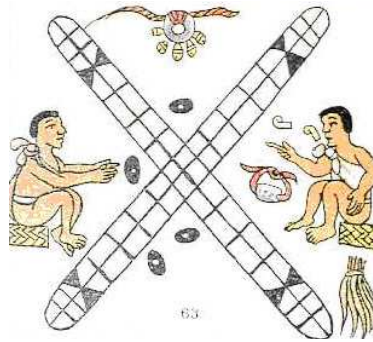
## 2 Chapter 52 Fifty-Two LII

It is often said that a year consists of 52 weeks. If a year had exactly 52 weeks, then it would have  $52 \times 7$ , or 364, days. That never happens. An ordinary year consists of 52 weeks and 1 day; a leap year consists 52 weeks and 2 days.

In a year that is not a leap year, there are 52 days in which the month and the day are both prime. For example, May 17.

The Mayan Calendar moves through a complete cycle every 52 years.

There are 52 positions for each of the two players on the board of the ancient Aztec game of Patolli:



Each player plays on only three of the arms of the cross, and in the four center squares. The black triangles are also positions.

The Boeing B-52 Stratofortress, nicknamed BUFF (Big Ugly Fat Fellow), is being flown by pilots who could be grandchildren of the original pilots, and are often younger than the planes they fly. The B-52, whose development program was canceled four times, is still the strategic bombing backbone of the U.S. Air Force.