TRADURRE IN ITALIANO IL TESTO SEGUENTE:

The story of π

The number π, which is the ratio of the circumference of a circle to its diameter, has a long story. Even nowadays supercomputers are used to compute its decimal expansion to as many places as possible.

The hunt for π (=3.1415926535..) began about two thousand years before Christ. The Egyptians obtained the value $(4/3)^4$ (=3.1604..) and the Babylonians the value 3+1/8 (=3.125). At about the same time, the Indians used the square root of 10 (=3.1622..).

About 250 BC Archimedes developed a method (using inscribed and circumscribed 6-, 12-, 48-, 96-gons) for calculating better and better approximations to the value of π, and found that $3+10/71 < \pi < 3+10/70$. Today we often use the latter value 22/7 (=3.1428..) for work which does not require great accuracy.

As time went on, other people were able come up with better approximations for π. About 150 AD, Ptolemy of Alexandria gave its value as 377/120 (=3.14166..) and in about 500 AD the Chinese Tsu Ch'ung-Chi gave the value as 355/113 (=3.1415929..).

It took a long time to prove that it was futile to search for an exact value of π, i.e. to show that it was irrational. This was proved by Lambert in 1761. In 1882, Lindemann proved that π was transcendental, that is, it is not the solution of any polynomial equation with integral coefficients. This has a number of consequences:

- It is not possible to square a circle. In other words, it is not possible to draw, with ruler and compass only, a square exactly equal in area to a given circle. This problem was set by the Greeks two thousand years ago and was only put to rest with Lindemann's discovery.
- It is not possible to represent π as an exact expression in roots, like $\sqrt{2}$, $\sqrt{7}$ or $\sqrt{5}+\sqrt{3}/\sqrt{7}$, etc.

From that time on interest in the value of π has centered on finding the value to as many places as possible and on finding expressions for π and its approximations, such as this found by the Indian mathematician Ramanujan:

$$\frac{63(17+15\sqrt{5})}{25(7+15\sqrt{5})} = 3.141592654...$$

This approximation is so good that my "ancient" Casio calculator tells me it's the same as π!

TRADURRE IN INGLESE LE FRASI SEGUENTI:

1. Non si possono calcolare tutte le cifre decimali di π.
2. 355/133 è una approssimazione a π migliore di 377/120.
3. Ramanujan ha trovato una approssimazione di π molto elegante.
4. Quante cifre decimali di π sono ora conosciute?
5. Quante cifre decimali di π calcolò Archimede?