

VALIDATING THE VALUE OF UNIVERSAL CONSTANT, Π

Why is the value of $\Pi=3.14$?

2/24/2010

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Date of Submission: 24 February 2010

KEYWORDS

- DNA, circumference, earth, gravity, denaturing, π -bonds, transcription, RNA

ABSTRACT

To arrive at the approximate value of π and establish it as a universal constant using various scientific results obtained from existing experimental methods.

The paper studies an important aspect of the human DNA that being the fact that it can be coiled around the earth 3.14 times after being denatured.

The value π which is being obtained as a result of many mathematical and pure scientific observations leads to the inevitable approximation of 3.14 or 22/7 or 355/113.

INTRODUCTION

Pi is an irrational number which is represented by the Greek symbol ' π '. Consequently its decimal representation never ends or repeats. The approximate value of Pi is 3.141593. It is also a transcendental number.

To find the length of a single denatured DNA strand and estimate the frequency of transcription; to find the relation between the radius of a circle with its circumference and the variation with which a freely falling body is changing with height.

There is a single constant, a single factor that binds all of mankind into this universe and that assumes the value of 3.14!

MATERIALS AND METHODS

The DNA

The discovery of covalent pi bonds in chemical molecules took place around about the same time as the discovery of the human DNA structure. The human body is made up of proteins which are nothing but amino acids which contain π -bonds. The genetic code embedded in the DNA is a sequence of amino acids within proteins. The code is read by copying stretches of DNA into the related nucleic acid RNA through transcription in a cycle which has a frequency of 355/113 ns⁻¹

First we need to conduct a rigorous experiment with uncoiled DNA threads and dip it in 5% aqueous solution of Acetic acid. This will cause the Hydrogen bonds present in the DNA to weaken and form stronger hydrogen bonds with the water molecules thus causing the denaturing of DNA. The length of DNA strands thus obtained was approximately estimated to be 3.14 meters.

The circle

Early experiments on finding the circumference of a circle revealed the following results which are listed in the Result section.

It can be inferred from the graph drawn with the data that the ratio of all circumferences to the diameters is found to be close to the value 3.14.

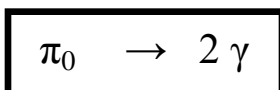
The acceleration due to gravity

Another factor influencing Newton's apple to fall which later was called the gravitational force is generally calculated using another constant "g".

Experiments on throwing an apple from different known heights to a fixed plane on the earth's surface near the equator showed that the ratio of the height to the time square was always a constant. This was actually found to be $2 * 3.14^2$.

The mesons

The π_0 meson has a slightly smaller mass and a much shorter mean lifetime of 8.314×10^{-17} s. This pion decays in an electromagnetic force process; the main decay mode is shown below and this occurs with a probability 0.988, is into two photons:



The probability can be shown to be $\pi^2/10!$

The Earth

When the fact that the earth was spherical was revealed then experimentations to find the radius of the earth were carried out. This was done in the following manner:

$$\sum d_i = 3.14 \times C$$

Where C = the circumference of the earth and hence it was shown that the DNA could be spun around the earth 3.14 times which is equal to π !

RESULTS

Diameter (D_i)	Circumference (C_i)	Ratio $C_i : D_i$
1	3.142	3.142
5	15.76	3.152
10	31.43	3.143
12	37.685	3.14
18	56.646	3.147
25	78.54	3.141
28	88.172	3.149

Statistical Results

Radius of the Earth = 6,371.0 km

Circumference = 40,041.47 km

Frequency of Transcription = 3.14 ns

THE DISCUSSION

- When the DNA is dipped in the aqueous solution the bonds are completely broken.
- When considering the velocity of the freely falling body the effects of air resistance and shift in trajectory due to wind are neglected.
- The experiment is being performed at places near the equator.

The significance is that different concepts in pure science can be manipulated and understood to explain the occurrence of many events which keep taking place around us. The implications are largely academic and direct the young scientific minds towards probing into relating existing knowledge with existing facts.

The universality of the value π is established and it is recognized as a constant appearing coincidentally in many of the experiments which define nature. Hence, the value of 3.14 is validated.