CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
S1214

Project Title
The Origins of Pi

Abstract

Objectives/Goals
What are some of the different methods for calculating the irrational decimal place values of the constant, Pi (d)? Is any method more accurate or efficient than others?

Methods/Materials
Beaker Marble Yarn
Graphing Calculator Ruler Toothpicks

Procedure:
Methods to be Analyzed:
· Spherical Method
· Buffon#s Needle Experiment
· Monte Carlo Method (Quarter Circle)
· Arctangent Infinite Series
· Wallis# Formula
· Newtonian Fluxions

Calculate Percentage Error for the different methods and analyze which approaches the constant value of Pi (d) most rapidly and accurately.

Results
Wallis# Formula provided the most accurate calculation approaching the value of Pi (d). The real resultant from this data, however, is that no method or number can represent or calculate Pi#s (d) exact value, except Pi (d), itself.

Conclusions/Discussion
We, in the real world, must decide the amount of precision we are going to use on a given project (ie: the building of a bridge) in order to accept something as perfect 'enough' to accept its usage.

Summary Statement
I looked at different methods of calculating Pi's decimal places and tested which approached Pi's true value fastest.

Help Received