P vs. Np Clay Institute Millenium Problem Solution

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Abstract: Here is the solution to the P-NP problem. It provides the solution to the limits of parabolic time which is determined by the Golden Mean Parabola. The limits are the Golden Mean and the Conjugate. The area of the P=NP solution is $\pi/4$.

1. INTRODUCTION

P versus NP is the following question of interest to people working with computers and in mathematics: Can every solved problem whose answer can be checked quickly by a computer also be quickly solved by a computer? P and NP are the two types of maths problems referred to: P problems are fast for computers to solve, and so are considered "easy". NP problems are fast (and so "easy") for a computer to check, but are not necessarily easy to solve.

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2. THE EQUATIONS

PARABOLIC TIME: The Golden Mean Equation

\[ t^2 - t - 1 = 0 \]
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P=NP : The Circle
\[ X^2 - y^2 = R^2 \]

ILLUSTRATION 3 SIN=COS

\[
\sin t = \cos t \\
\frac{\sin t}{\cos t} = 1 = 1 \\
\tan t = 1 \\
T = 45 \text{ degrees} = 0.7854 \text{ rads} \\
E = \frac{1}{t} \\
= \frac{1}{0.7854} = 0.1273 = \rho = \text{density} \\
E = \rho = y \text{ (Universal Density)}
\]

ILLUSTRATION 4 THE GOLDEN MEAN CIRCLE

\[ X^2 + y^2 = R^2 \]
\[ R = \frac{1}{2} \]
\[ X^2 + y^2 = (\frac{1}{2})^2 \]
\[ Y = E = 0.1273 = \rho \]
\[ X^2 + (0.1273)^2 = 1/4 \]
\[ X = 0.2338 \]
\[ \ln x = \pi \]

Plug into the Golden Mean Equation:
\[ (0.2338^2 - 0.2338 - 1) = 0.1179 \approx 118 \text{ (# of Chemical elements)} \]
E=26.667/1.602*117.9=0.858
=\sin 57.29 \text{ degrees}=\sin 1 \text{ rad}=\cos 1 \text{ rad}

(\text{Universal Mohr-coulomb Failure})

t=1 \text{ rad}
R=1/2
dia=1=t
\sin^2(0)+\cos ^2(0)=R^2
0+1=R^2
R=1
But \ R=1/2
R=2R
X^2-x—1=1
X^2-x-1=2R
\text{Golden Mean = dia}
1.618-(-0.618)=1
X^2-x-1=2R
\sin^2(\theta)+\cos^2 \theta=R^2
\text{Derivative}
2\cos \theta+2 \sin \theta=2R
\sin – \cos=2R
\sin \theta-\cos \theta=2(1/2)
\sin \theta-\cos \theta=1
\cos = 1-\sin
\text{Momentum=Moment}
Mv=Fd
26.667(0.8515)=2.667(d)
D=s=0.8415
V=s
Ds/dt=s
Y=y’
Y=e^x
Now \ t=1 \ \ \ E=y=e^t
E=1/t=1/1=e^t
\text{t=0}
\text{So from the Golden Mean parabola}
T^2-t-1=0
(0)^2-0-1=1
\text{And the circle:}
X^2-y^2=R^2
(0)^2-(e^0)-1=0
R=0 (Trival)
So P=NP at t=0 in parabolic time. The roots are 0.618, 1.618 which are the limits of time. So, if -0.618<t<1.618, P=NP and the value is determined by t^2-t-1

Area of P-NP circle of radius=1/2
A=\pi R^2=\pi(1/2)^2=\pi/4=45 degrees (see above)

A bit more on how to look at this problem, is:

**Illustration  Golden Mean Parabolas**
The slope of P vs NP meet at the derivatives.
2t-1=-2t+1
4t-2=0
T=1/2t^2-t-1=0
Integrate
T^3/3-t^2/2-t=E
T=1/2 , E=G=2/3
This is the Clairnaut Differential Equation.
D^2/dt^2-E=0
D^2/dt^2=G
Common Area t=(-1/2, +1/2)
T=1
1^3/3-1^2/2-1=0.1666=1/6
1/6-(1/6)=2/6=1/3
Circumference of the circle
C=2\pi r
1/3=2\pi R^2
R=23.03
Area=Circ
Y=y’
Ln t=t
Ln 23.03\approx 3.13\pi

Equation of a circle
\[ X^2 - y^2 = R^2 \]
\[ 2x^2 = \pi^2 \]
\[ X = \frac{\pi}{\sqrt{2}} \approx 0.222 \]
\[ = 127 = \rho = \text{density} \]

Now for the Easy to Solve; Hard to Check:

\[ \mu = 1 \]
\[ \mu = \frac{1}{-0.618} = -1.618 \]

This is the golden Mean Equation roots

3. **Conclusion**

P=NP has a solution. It lies on the Golden Mean function between \( t = -0.618 \), and 1.618. Otherwise, there is no solution.

**References**

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