

Interview Question for Universal Parabolic Constant

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Brief Introduction of the interview -

Nivedita Garde -

She is a student in System Research Institute.

She is in the department of Mathematics and Statistics.

The research areas are Analysis, Geometry, Mathematics and Physics.

Interview questions including open, closed ended questions and contingent questions-

1. What is your area of interest in your research in the Systems Research Institute?

Ans - Discrete Mathematics

2. What is the purpose of using this constant in your field of expertise

Ans - In the research area of Physics it is widely used.

3. How is the value of the universal parabola constant calculated ?

Ans - $P = \ln(1+\sqrt{2}) + \sqrt{2}$

4. How frequently is it used?

Ans - It is not much used, but used for specific applications. It is a complex exponential function and is ubiquitous in physics and comes into all sorts of models of dynamics via Fourier analysis.

5. How is the value of the Universal Parabola constant applied?

Ans - The average distance from a point randomly selected in the unit square to its center

6. Is there any application in which you are using this constant ?

Ans - Yes

7. Can you describe the application which uses this constant more ?

Ans - A parabolic antenna is an antenna that uses a parabolic reflector, a curved surface with the cross-sectional shape of a parabola, to direct the radio waves.

8. Can you explain briefly the working of the application you know ?

Ans - The operating principle of a parabolic antenna is that a point source of radio waves at the focal point in front of a paraboloidal reflector of conductive material will be reflected into a collimated plane wave beam along the axis of the reflector in which the parabola constant is used.

9. Are there any difficulties computing this constant in the mathematical derivations in any application ?

Ans - Yes

10. Can you explain the disadvantages of it then ?

Ans - π and e are ubiquitous in mathematics, science, and engineering.

11. In the application which were studying on for deriving the formula, and computation, what was the duration needed for the computation

Ans - 9-10 months with lots of permutation and combination.

12. Can you explain which applications in your research area was using this constant ?

Ans - Projectile motion is a form of motion experienced by an object or particle (a projectile) that is thrown near the Earth's surface and moves along a curved path under the action of gravity only (in particular, the effects of air resistance are assumed to be negligible).

13. Are there any other fields except this in which this constant is used ?

Ans - Mathematical Physics