

Kolmogorov Complexity, Google, and CS70

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Minimum sized program that prints string s .

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What is the minimum I need to know (remember) to know stuff.

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Radius of the earth?

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Calculus:

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Depends on your skills!

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Calculus: what is minimum you need to know?

Depends on your skills!

If you can reason and understand an argument, one can generate a lot.

Calculus

What is the first half of calculus about?

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Arguments, reasoning.

What you know: slope, limit.

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yields calculus.

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Bayes Rule

If someone is nice to you, what is the chance they are a friend?

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Can we figure it out? How?

Induction

Induction \equiv every integer has a next one.

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Number of edges is sum of degrees.

$\Delta + 1$ coloring. Neighbors only take up Δ .

Eulerian paths: if you enter you can leave.

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Number theory.

A divisor of x and y divides $x - y$.

The remainder is always smaller than the divisor.

\implies Euclid's GCD algorithm.

Multiplicative Inverse.

Fermat's theorem from function with inverse is a bijection.

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Error Correction.

(Any) Two points determine a line.

(well, and d points determine a degree $d + 1$ -polynomials.

Cuz, factoring.

Find line by linear equations.

If a couple are wrong, then multiply them by zero, i.e., Error polynomial.

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What's going on, can I state it simply and derive it?

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Simply state this week in your class.

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What did you teach this week!

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What should the student know?

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How do you assess?

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...and bayesian updating frame: use evidence!!! (CS188)