Doing Math with Python

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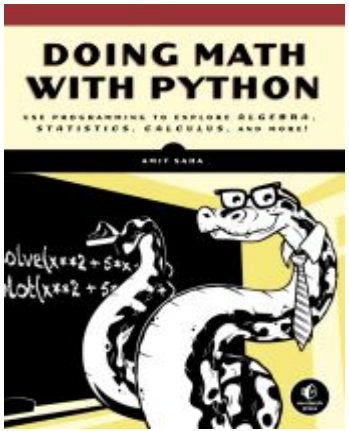
Hi!

I am @echorand

About me

Author of “Doing Math with Python”, No Starch Press, August, 2015



Contributor to SymPy, CPython, creator/maintainer of Fedora Scientific

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Demos

https://github.com/doingmathwithpython/pycon-au-2016

Why “Math with Python”?

Interactive and enriching teaching and learning experience

How?

Tools: Python 3, SymPy, matplotlib

Python as a ..

#1. Scientific Calculator

math, statistics, others

(Notebook: Scientific Calculator)

#2. Really Awesome Calculator

SymPy, matplotlib

SymPy Basics

Add two expressions

(Notebook: SymPy Basics)

Create a graph

$$y = 2x^2 + 2x + 1$$

(Notebook: Awesome Calculator - 1)

Solve equations

$$2x^2 + 2x + 1 = 0$$

(Notebook: Awesome Calculator - 2)

Solve inequalities

$$\sin(x) + 1 <= 0$$

(Notebook: Awesome Calculator - 3)

Limit of a function

⬅⬅*sin(x) + 1 <= 0*

(Notebook: Awesome Calculator - 4)

Derivative of a function

$d/dx\ (2\sin(x)x^2$

(Notebook: Awesome Calculator - 5)

Integral of a function

Integral $(2\sin(x)x^2$

(Notebook: Awesome Calculator - 6)

Definite Integral of a function

Integral $(2\sin(x)x^2$

(Notebook: Awesome Calculator - 7)

#3. More than smart calculators

Interactive notebooks, Animations

Interactive Barnsley Fern

(Notebook: Interactive Barnsley Fern)

Interactive Mandelbrot Set

(Notebook: Interactive Mandelbrot Set)

Animations

(Notebook: Projectile Motion)

Great base for the future

Data Science, Machine Learning

(Notebooks: Gradient Descent, Simple Linear Regression)

That’s all.

@mathwithpython

doingmathwithpython.github.io