labX_index

August 19, 2017

1 Laboratories

Basic structure:

- labX_intro.ipynb: http://localhost:8888/notebooks/labX_intro.ipynb Getting started, Jupyter, Git, Numpy, Matplotlib. Tasks involve calculating with numpy arrays and plotting (basic, subplot, complex, 3d)
- labX_symintro.ipynb: http://localhost:8888/notebooks/labX_symintro.ipynb Symbolic math with sympy, basic and advanced differentiation, symbolic plotting and integration. Tasks involve symbolic plotting, roots, differentiation, and integration.

Order these. Symbolic first?

- labX_discdiffeq.ipynb: http://localhost:8888/notebooks/labX_discdiffeq.ipynb Euler methods for numerical approximate step response of first-order lowpass RC circuit.
- labX_symfseries.ipynb: http://localhost:8888/notebooks/labX_symfseries.ipynb Using symbolic math to calculate Fourier series coefficients, and lambda functions for numerical reconstruction plots. Symbolic functions defined using "Piecewise" and integrated.
- labX_bodeplot.ipynb: http://localhost:8888/notebooks/labX_bodeplot.ipynb Basic plotting of first-order lowpass response, justifying log-log scales. Task requires plotting second-order.
- labX_symdiffeq.ipynb: http://localhost:8888/notebooks/labX_symdiffeq.ipynb Symbolic first-order RC lowpass step response. Task requires plotting second-order RLC.
- labX_freqresprclp.ipynb: http://localhost:8888/notebooks/labX_freqresprclp.ipynb Struggling to complete. Issue with step size.

Scratch:

- labX_convolution.ipynb: http://localhost:8888/notebooks/labX_convolution.ipynb

- labX_symdelta.ipynb: http://localhost:8888/notebooks/labX_symdelta.ipynb
- labX_symdiffeq2.ipynb: http://localhost:8888/notebooks/labX_symdiffeq2.ipynb
- labX_symtaylorexp.ipynb: http://localhost:8888/notebooks/labX_symtaylorexp.ipynb
- labX_discdiffeq2.ipynb: http://localhost:8888/notebooks/labX_discdiffeq2.ipynb

- labX_symnewtonm.ipynb: http://localhost:8888/notebooks/labX_symnewtonm.ipynb
- labX_reconstruct.ipynb: http://localhost:8888/notebooks/labX_reconstruct.ipynb
- labX_sym_scratch.ipynb: http://localhost:8888/notebooks/labX_sym_scratch.ipynb

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In [1]:
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