My Presentation

And Some Things About It

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Feb. 30, 2142

Summary

Blocks and Colors

Color

- That's the blue2 color
- That's the green2 color
- That's the red2 color
- That's the violet2 color
- That's the orange2 color
- That's the yellow color

Blocks

begin block

There's a block

begin alertblock

there's a alert block

begin example block

here comes example

Blocks

Theorem

Here comes a theorem

Proof.

Here comes the proof □

boxes and columns

Box

phrase inside box

A big box

$$\{R_\alpha^n(0) \mid n \in \mathbb{N}\} = \{n\alpha \bmod 1 \mid n \in \mathbb{N}\}$$

é denso em $[0, 1)$.

Two Columns entire page

Obs: $\alpha \overset{\mathrm{def}}{=} \log b \in \mathbb{R}\backslash\mathbb{Q}$

$$\begin{aligned} R_\alpha : [0,1) &\longrightarrow [0,1) \\ x &\longmapsto x + \alpha \bmod 1 \end{aligned}$$

Here we can write some text Here we can write some text Here we can write some text Here we can write some text Here we can write some text Here we can write some text

$$R^n_\alpha(x) \overset{\mathrm{def}}{=} R_\alpha \overbrace{\circ \ldots \circ}^{n} R_\alpha(x)$$

Here we can write some text Here we can write some text Here we can write some text Here we can write some text Here we can write some text Here we can write some text

Question??????????? tell me if you want

the answer is YES!!!! because that that and that or..

The answer is NO!!!! because that that and that

Two Columns entire page

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Table and minipage

n	1	2	3	4	5	6	7	8	9	10	11	...
2^n	2	4	8	16	32	64	128	256	512	1024	2048	...

o dígito 1 é mais frequente que o dígito 3?

Spoiler: YES.

Um conjunto de números satisfaz a *lei de Benford* se o primeiro dígito $d \in \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ ocorre com a seguinte proporção

$$P(d) = \log\left(1 + \frac{1}{d}\right)$$

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Equations and Figure

Ordinary Differential Equations

$$\frac{\mathrm{d}}{\mathrm{d}x}y(x) + \frac{1}{CR}y(x) = 0$$

$$\frac{\mathrm{d}^2}{\mathrm{d}x^2}y(x) + \gamma\frac{\mathrm{d}}{\mathrm{d}x}y(x) + \omega_0^2 y(x) = f(x) \qquad (1)$$

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$$\frac{\mathrm{d}^2}{\mathrm{d}x^2}y(x) + \gamma\frac{\mathrm{d}}{\mathrm{d}x}y(x) + \omega_0^2 y(x) = f(x)$$

$$\Downarrow$$

$$\left[\frac{\mathrm{d}^2}{\mathrm{d}x^2} + \gamma\frac{\mathrm{d}}{\mathrm{d}x} + \omega_0^2\right] y(x) = f(x)$$

$$\Downarrow$$

$$y(x) = \frac{f(x)}{\frac{\mathrm{d}^2}{\mathrm{d}x^2} + \gamma\frac{\mathrm{d}}{\mathrm{d}x} + \omega_0^2}$$

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Imagem

Figure: Some words about the figure here

See how is cool the fourier serie

$$\mathcal{F}[f](\xi) = \hat{f}(\xi) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} f(x) e^{-ix\xi} \, \mathrm{d}x$$

$$\mathcal{F}^{-1}[\hat{f}](x) = f(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} \hat{f}(\xi) e^{ix\xi} \, \mathrm{d}\xi$$

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Quality Control

$$\widehat{(f+\alpha g)}(\xi) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} (f(x) + \alpha g(x))\, e^{-ix\xi}\, \mathrm{d}x$$

$$\Downarrow$$

$$\widehat{(f+\alpha g)}(\xi) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} f(x) e^{-ix\xi}\, \mathrm{d}x + \frac{\alpha}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} g(x) e^{-ix\xi}\, \mathrm{d}x$$

$$\Downarrow$$

$$\widehat{(f+\alpha g)}(\xi) = \hat{f}(\xi) + \alpha \hat{g}(\xi)$$

Quality Control

$$(\widehat{f+\alpha g})(\xi) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} \left(f(x) + \alpha g(x)\right) e^{-ix\xi} \, \mathrm{d}x$$

$$\Downarrow$$

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$$\widehat{(f+\alpha g)}(\xi)=\hat{f}(\xi)+\alpha\hat{g}(\xi)$$

Quality Control

$$\widehat{f'}(\xi) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} f'(x) e^{-ix\xi} \, \mathrm{d}x$$

$$\Downarrow$$

$$\widehat{f'}(\xi) = \frac{f(x)e^{-ix\xi}}{\sqrt{2\pi}} \bigg|_{-\infty}^{+\infty} + i\xi \cdot \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} f(x) e^{-ix\xi} \, \mathrm{d}x$$

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$$\widehat{f'}(\xi) = i\xi \widehat{f}(\xi)$$

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$$\Downarrow$$

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Quality Control

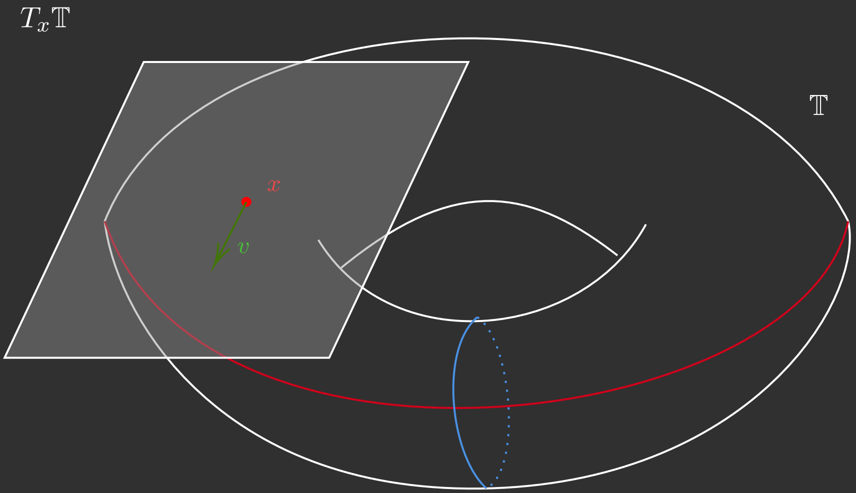
The inverse does work

for appropriate functions

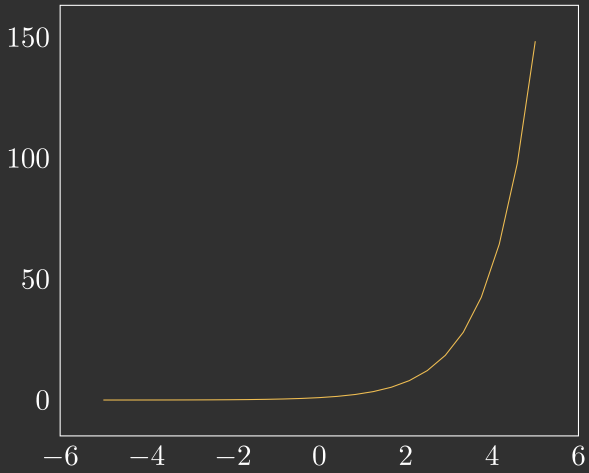
and, sometimes, the Fourier Transform of a function is not in the same set as the original function, but let's forget about this since we do not know a decent theory of integration

graphs and other tikz

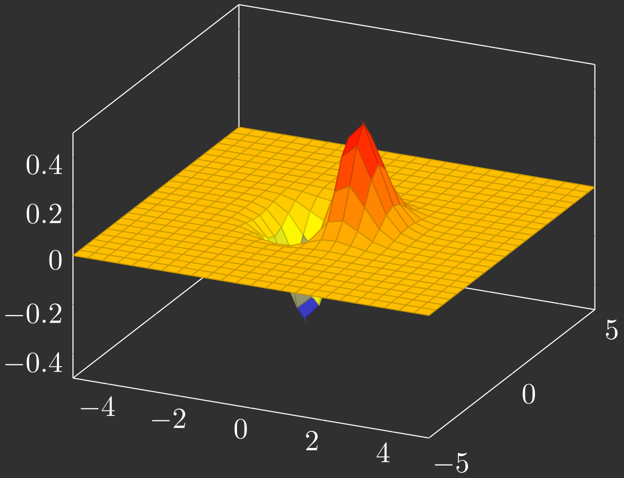
Drawning within tikz



It's possible plotting graphs with pgfplots and tikz



Plotting 3d



The End