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

$\boxed{\text{phrase inside box}}$

A big box

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

denso em $[0, 1)$.

Two Columns entire page

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

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

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$$R_\alpha^n(x) \stackrel{\text{def}}{=} R_\alpha \overbrace{\circ \ldots \circ}^{n} R_\alpha(x)$$

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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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$$R_\alpha^n(x) \overset{\text{def}}{=} \overbrace{R_\alpha \circ \dots \circ R_\alpha}^{n}(x)$$

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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	...

$\boxed{\text{o dgito 1 mais frequente que o dgito 3?}}$

Spoiler: YES.

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

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

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Equations and Figure

Ordinary Differential Equations

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

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

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$$\Downarrow$$

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

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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

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

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

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

$$\Downarrow$$

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

$$\Downarrow$$

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

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Quality Control

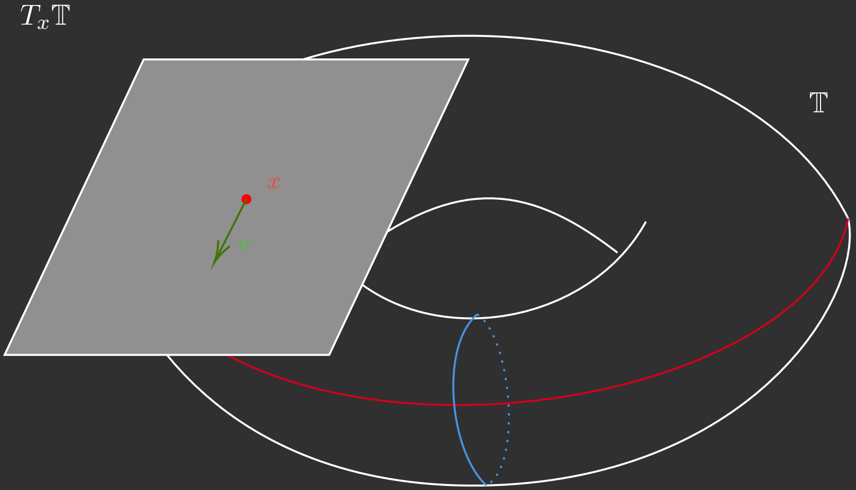
The inverse does work

for appropriate functions

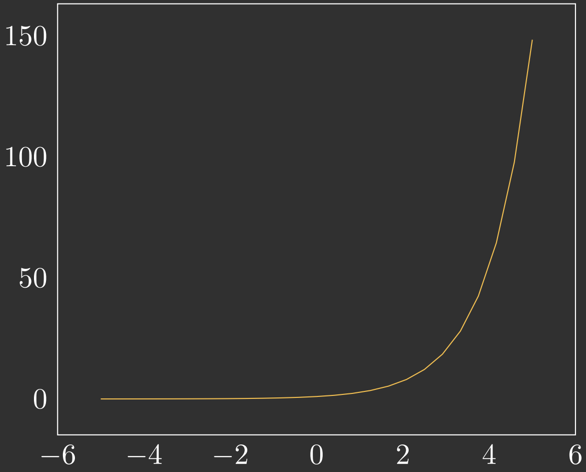
and, sometimes, the Fourier Transform of a function is not in the same set as the original function, but let's forget about this since we do not know a decent theory of integration

graphs and other tikz

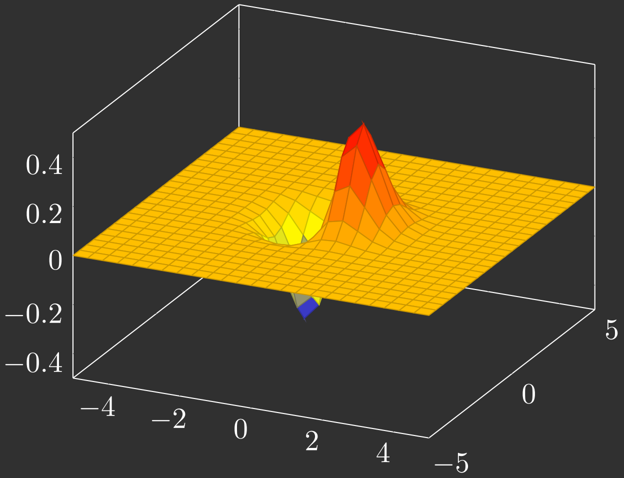
Drawning within tikz



It's possible plotting graphs with pgfplots and tikz



Plotting 3d



References

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