[DC #1]

Anabolic Hilbert • 16 Feb 2025

[Differential Calculus - FME Q2 2024-2025]

<Post 1>

Proof that $(\mathbb{R}^n, d_2)$ is a metric space is done.

I've struggled to show $d_2(x, y) \leq d_2(x, z) + d_2(z, y)$. As this definition:

$$d_2(x, y) := \sqrt{\sum_{i=1}^{n} (x_i - y_i)^2}$$

.

Was hard to grasp to me, as for the usual style of teaching this was presented just symbolically and nothing behind that. So I started the proof forgeting that square root.

Then I also did a mistake using the CBS-Inequality, as the same thing. The inequality was introduced as a symbolical painting. So guess what, I forgot the square on the LHS.

Once that was fixed, (also did some examples in R2), the proof worked out well.

Writting the whole proof out with the subindexs was very exhausting.

I wonder if my classmates associate this d2 with something or just do this proof on memory force.

However, it's done.

Going for a run now.