

 Info

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on January 24, 2025 2:18:27 PM, was last modified on September 5, 2026 5:10:19 PM, and was exported on September 7, 2026 3:04:08 PM.

$$\mathbb{Q}_{\hat{p}}$$

 **Definition.** p -adic norm $|\cdot|_p : \mathbb{Q} \rightarrow \mathbb{R}_{\geq 0}$

For a prime $p \in \mathbb{N}$, the p -adic norm on $\mathbb{Q}$ is defined by defining

$$|p|_p = \frac{1}{p}$$

and

$$|q|_p = 1$$

for all other primes $q \neq p$.

This norm determines a metric

$$(x, y) \mapsto |x - y|_p$$

 **Definition.**

$$\mathbb{Q}_{\hat{p}} := \overline{(\mathbb{Q}, |\cdot|_p)}$$

Current note has 1 direct children and 1 total descendants.

- [stretchy](#)
 - $\mathbb{Q}_{\hat{p}}$
 - [Construction of \$\mathbb{Q}_{\hat{p}}\$](#)

And it has 62 siblings.

- [stretchy](#)
 - [Trefoil \$3_1\$ knot](#)
 - [The only compact connected Lie group that can act faithfully on a torus is itself](#)
 - [Hecke algebras](#)
 - $\overline{B^n}$
 - $\mathrm{BS}(1, 2)$
 - $(\mathbb{C}, +, \times)$
 - $D^* := D \setminus \{0\}$
 - [Cantor set](#)
 - [Configuration space of \$N\$ rigid points in \$\mathbb{R}^3\$](#)
 - [Free groups](#)
 - $GL(2)(\mathbb{Z}) \curvearrowright T^2$
 - H_2^3
 - $[a, b]$
 - [Figure 8 knot](#)
 - [Lamplighter group on \$\mathbb{Z}_2\$](#)
 - $\beta\mathbb{N}$
 - $\#_2\mathbb{R}P^2$
 - $\prod_{i \in \mathbb{N}} \{1, \dots, n_i\}$
 - $\mathbb{R}P^n$
 - $(\mathbb{Q}, +, \times, <)$
 - $\mathbb{Q}_{\hat{p}}$
 - $\overline{\mathbb{Q}}$
 - $\mathbb{Q}_{\mathrm{constr}}$
 - $\mathbb{Q}(\xi_n)$
 - $\mathcal{O}_{\overline{\mathbb{Q}}}$
 - $(\mathbb{R}, +, \times, <, \sup)$
 - [Homeomorphism of \$\mathbb{R}^2\$ that sends \$\mathbb{N}\$ to a countable closed discrete subset](#)
 - $\mathbb{R}^2 \times S^1$
 - $\mathbb{R}^n$
 - $\mathbb{R} \times S^1$
 - $\mathbb{R} \times S^2$
 - S^1
 - $S^1 \wedge S^1$
 - $S^1 \times S^n$
 - S^2 [and](#) $\mathbb{C}P^1$
 - [Mapping torus of the antipodal map of \$S^2\$](#)
 - S^3
 - S^n
 - [I-bundle](#)
 - [Symmetric group](#)
 - $\mathbb{I}$
 - T^2
 - T_g^2
 - $T_{0,0,3}^2$
 - $\mathbb{R}^2 \setminus \{0\}$
 - [Three \$T_{1,0,1}^2\$ glued at their boundaries](#)

- $T_{1,1,0}^2$
- T_2^2
- $T_g^2 \times [0,1]$
- $\#_{\mathbb{N}}T^2$
- Thompson's group
- T^n
- 3-valent tree
- 4-valent tree
- $[0,1]^{\mathbb{N}}$ with product topology
- Whitehead manifolds
- $\mathbb{Z}$
- $\mathbb{Z}[\sqrt{m}]$
- $\mathbb{Z}[X]$
- $\mathbb{Z}^{\mathbb{N}}$
- $\mathbb{Z}[i]$
- $\mathbb{Z}[i\sqrt{5}]$