

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on April 21, 2026 6:12:30 PM, was last modified on May 2, 2026 1:26:08 AM, and was exported on September 7, 2026 2:50:32 PM.

Jacobi theta function

$$\vartheta : \mathbb{C} \times H^2_{\mathbb{U}} \rightarrow \mathbb{C}$$
$$(z, \tau) \mapsto \sum_{n \in \mathbb{Z}} \exp(\pi i n^2 \tau + 2 \pi i n z)$$

The theta function $\vartheta(-, \tau)$ is 1-periodic

$$\vartheta(z + 1, \tau) = \vartheta(z, \tau)$$

And thus it forms a function on the punctured disk $\mathbb{Z} \backslash H^2_{\mathbb{U}} \cong D^*$

$$\vartheta(\eta, \tau) = \sum_{n \in \mathbb{Z}} \exp(\pi i n^2 \tau) \eta^n$$

Current note has 0 direct children and 0 total descendants.

- [squishy](#)
 - [pow](#)
 - [Theta functions](#)
 - [Jacobi theta function](#)

And it has 1 siblings.

- [squishy](#)
 - [pow](#)
 - [Theta functions](#)
 - [Jacobi theta function](#)