Homework 11, 2023 Spring

Problem 11.1: Prove the following result:

Suppose π is a parallelogram in the (x, y) plane so that two of its sides lie on the lines $y = 0$ and $y = 1$, respectively. Then given any $\varepsilon > 0$, we can find parallelograms $\pi_1, \ldots, \pi_N$, each having two sides lying on the lines $y = 0$ and $y = 1$, with $\pi_i \subset \pi$, $|\cup_{i=1}^{N} \pi_i| < \varepsilon$, and so that any line segment in π that joins the lines $y = 0$ and $y = 1$ has a translate that is contained in one of the π_i.