Think of $f \in \mathcal{O}(X)$ or $L^2(X)$ or $\underbrace{\mathcal{H}(X)}_{\text{holomorphic}}$

where $X = \mathbb{P}^1_{\mathbb{C}} - \{0, 1, \infty\}$

So $\mathcal{O}(X)_x = k[x]$ $\quad \mathcal{O}(X)_y = k\left[\frac{1}{x}\right]$

$$k\left[\tfrac{1}{x}\right] = y$$

$$\begin{array}{ccc} k[x,y]/(xy) & \longrightarrow & k[x] \\ \downarrow & & \downarrow \\ k[y] & \longrightarrow & k \xrightarrow{\lambda} k \end{array}$$

$\lambda \in k^* = GL_1(k)$

$= T^1_k$

$= SL_1(k) \times T^1_k$

Since f holomorphic on X, ~~on~~ on any open disk $\mathbb{D}$ with $\mathbb{D} \cap \{0,1,\infty\} = \emptyset$ can uniformly approximate f with polynomials.

On any $\mathbb{D}^\times$ punctured disk can uniformly approximate by ~~[illegible]~~ rational functions.

If $f = L(\chi, s) = \sum_{\mathbb{Z}} \frac{\chi(n)}{n^s}$

or $=$ ~~[illegible]~~ $\prod \chi(1-$

$$\prod_{p \text{ prime}} \det\left(1 - \frac{\chi(g)}{n^s}\right)^{-1}$$