$$\frac{V}{\mathbb{Z}\{\lambda_1, \cdots \lambda_n\}} \cong (\mathbb{C}^*)^n,$$

and we can factor our projection map $\pi : V \to M$ by

$$V \longrightarrow \frac{V}{\mathbb{Z}\{\lambda_1, \cdots \lambda_n\}} \xrightarrow{\pi_1} M.$$

Γ (1, 0), (3, 3) and (3, 2) form a basis for $\mathbb{Z}^2$ but they are not linearly independent.

$$\frac{V}{\mathbb{Z}\{\lambda_1, \cdots \lambda_n\}} \cong \mathbb{C}^n / \mathbb{Z}\{\lambda_1, \cdots \lambda_n\} \cong \mathbb{C}^n / \mathbb{Z}^n = \mathbb{Z}\{\overset{e_1}{\begin{pmatrix}1\\0\\\vdots\end{pmatrix}} \cdots e_n\}$$

$$\begin{pmatrix}\alpha_1\\ \vdots \\ \alpha_n\end{pmatrix} \longmapsto \begin{pmatrix}\lambda_1 & \cdots & \lambda_n\end{pmatrix}^{-1} \begin{pmatrix}\alpha_1\\ \vdots \\ \alpha_n\end{pmatrix}$$

$$\Rightarrow \mathbb{C}^n / \mathbb{Z}^n \xrightarrow{\phi} (\mathbb{C}^*)^n$$

$$\begin{pmatrix}\alpha_1\\ \vdots \\ \alpha_n\end{pmatrix} \longmapsto \begin{pmatrix}e^{2\pi i \alpha_1}\\ \vdots \\ e^{2\pi i \alpha_n}\end{pmatrix} \Rightarrow \phi \text{ is isomorphic.}$$

$$\Rightarrow V / \mathbb{Z}\{\lambda_1 \cdots \lambda_n\} \cong (\mathbb{C}^*)^n.$$

What is π_1? $\pi_1 : V / \mathbb{Z}\{\lambda_1, \cdots \lambda_n\} \to V / \mathbb{Z}\{\lambda_1, \cdots \lambda_{2n}\}$.

Now we have also seen on P. 27 that

$$H^1((\mathbb{C}^*)^n, \mathcal{O}) = H^2((\mathbb{C}^*)^n, \mathcal{O}) = 0,$$

and hence