global section of $\mathcal{M}^*/\mathcal{O}^*$.

$\Rightarrow \quad \psi \circ \phi = \text{identity}.$

Given $D = \sum a_i V_i$, $\quad \psi(\sum a_i V_i) = (f_\alpha) \quad f_\alpha = \prod_i g_{i\alpha}^{a_i}$
and $\{U_\alpha\}$, s.t each $V_i$ has a local defining function on $U_\alpha$.

$$\phi((f_\alpha)) = \sum \operatorname{ord}_{V_i}(f_\alpha) V_i = \sum \operatorname{ord}_{V_i}(f_\alpha) V_i$$

Since $\operatorname{ord}_{V_i}(f_\alpha) = a_i$, $\quad \phi((f_\alpha)) = \sum a_i V_i$.

$\Rightarrow \quad \phi \circ \psi = \text{identity}.$

$$\phi : \underset{f_1,\, f_2}{\overset{}{H^0(M, \mathcal{M}^*/\mathcal{O}^*)}} \longrightarrow \operatorname{Div}(M)$$

$\Rightarrow \quad f_1$ has open cover $\{U_{\alpha,1}\}$
$\quad\ \ f_2$ 〃 $\{U_{\alpha,2}\}$

$\Rightarrow \quad f_1, f_2$ has an open cover $\{U_\alpha\}$ s.t $\dfrac{f_{1\alpha}}{f_{1\beta}} \in \mathcal{O}^*(U_\alpha \cap U_\beta)$
by taking intersection of $\{U_{\alpha,1}\}$ al $\{U_{\alpha,2}\}$.

$$\Rightarrow \quad \frac{(f_1 f_2)_\alpha}{(f_1 f_2)_\beta} = \frac{f_{1\alpha} f_{2\alpha}}{f_{1\beta} f_{2\beta}} \in \mathcal{O}^*(U_\alpha \cap U_\beta)$$

$$\Rightarrow \quad D = \sum_V \operatorname{ord}_V((f_1 f_2)_\alpha) V$$

$$= \sum_V \operatorname{ord}_V(f_{1\alpha} f_{2\alpha}) V = \sum (\operatorname{ord}_V(f_{1\alpha}) + \operatorname{ord}_V(f_{2\alpha})) V$$

$$= \sum_V \operatorname{ord}_V(f_{1\alpha}) V + \sum \operatorname{ord}_V(f_{2\alpha}) V$$

$$= \sum_V \operatorname{ord}_V(f_1)_\alpha V + \sum \operatorname{ord}_V(f_2)_\alpha V = \phi(f_1) + \phi(f_2).$$