0.1. Let $\mathcal{C}, \mathcal{C}', \mathcal{D}, \mathcal{D}'$ be abelian categories equivalent to categories of modules over finite dimensional associative algebras over a base field $F$. Let $\varphi_\mathcal{C} : \mathcal{C} \rightarrow \mathcal{C}'$, $\varphi_\mathcal{D} : \mathcal{D} \rightarrow \mathcal{D}'$ be exact functors and let $\pi : \mathcal{C} \rightarrow \mathcal{D}$, $\pi' : \mathcal{C}' \rightarrow \mathcal{D}'$ be quotient functors. Suppose that
\begin{itemize}
  \item $\pi' \circ \varphi_\mathcal{C} \cong \varphi_\mathcal{D} \circ \pi$,
  \item $\pi, \pi'$ are fully faithful on the projective objects,
  \item $\varphi_\mathcal{C}, \varphi_\mathcal{D}$ map the projective objects to the projective objects.
\end{itemize}
Show that $\text{End}(\varphi_\mathcal{C}) = \text{End}(\varphi_\mathcal{D})$. Moreover, check that $\varphi_\mathcal{C}$ is uniquely recovered from the remaining three functors.

0.2. Let $W'' \subset W' \subset W$ be parabolic subgroups. Then $\circ \text{Res}_W^{W''} \cong \circ \text{Res}_W^{W''} \circ \circ \text{Res}_W^W$.

0.3. For $c = \frac{a}{d}$ with $a > 0$ and GCD$(a, d) = 1$ prove the following identity in $K_0(\mathcal{O}_c(kd))$: 
\[
\sum_{i=0}^{k-1} (-1)^i [L_c((k-i)d, d')] = \sum_{j=0}^{dk-1} (-1)^j [\Delta_c(dk-j, 1^j)]
\]