$f\left(x\right)=x^{3}+x+1$ and $g\left(x\right)=x^{3}+x^{2}+1$ are irreducible over $F\_{2}$. $K$ is the field extension obtained by adjoining a root of $f$ and $L$ is the extension obtained by adjoining a root of $g$. Determine the number of isomorphisms from $K$ to $L$. (It is **not** necessary to explicitly describe such an isomorphism)