Quiz 4

You must give complete, mathematically correct proofs to receive full credit!!

**Problem 1.** (5 points) Let $G = (\mathbb{R}^+, \cdot)$ and $H = (\mathbb{R}, +)$. Show that $\phi : G \to H$ defined by $\phi(x) = \ln x$ is an isomorphism.

**Problem 2.** (5 points) Let $G = S_3$. Find the image of every element of $G$ under the inner automorphism of $G$ induced by the element $(12)$. 