Let $A \subset X$, suppose $r: X \to A$ is a continuous map s.t $r(a) = a$ for each $a \in A$. If $a_0 \in A$ show that $r_*: \pi_1(X, a_0) \to \pi_1(A, a_0)$ is surjective.

Let $g \in \pi_1(A, a_0) \subset \pi_1(X, a_0)$

then $r_*(g) = r \circ g = g$ ■