Let A be a subspace of $\mathbb{R}^n$. Let $h:(A,a_0)\to(Y,y_0)$. Show that if h is extendable to a continuous map of $\mathbb{R}^n$ into Y, then h_* is the trivial homomorphism.

In some way this is pretty clear as $\mathbb{R}^n$ is simply connected.

Let $\tilde{h}$ be a continuous extention of h to $\mathbb{R}^n$. Want to show that $h_*(f)$ is homotopic to e ~ the point loop at y_0 in $\pi_1(Y,y_0)$.

Let $F:[0,1]\times[0,1]\to Y$ by

$$F(s,t)=\tilde{h}(ta_0+(1-t)f(s))$$

F is continuous being the composition of continuous functions and $F(s,0)=\tilde{h}(f(s))=h(f(s))=h_*(f)(s)$

$$F(s,1)=y_0$$

So $h_*(f)$ is ~~is~~ path homotopic to e $\blacksquare$