

Whitehead's Thm

let X, Y connected complexes so

(i) $i: X \hookrightarrow Y$ (X subcomplex) so $i_*: \pi_n(X) \xrightarrow{\sim} \pi_n(Y) \forall n \geq 1$
Then Y strongly deforms retracts on X

(ii) if $f: X \rightarrow Y$ so $f_*: \pi_n(X) \xrightarrow{\sim} \pi_n(Y) \forall n \geq 1$
then $X \simeq Y$ htpy equiv via f ! (converse true also)

→ Careful!

The iso must be induced by map of spaces!

Check Ex 6

But, if X CW complex

so $\pi_n(X) = 0 \forall n \geq 0$

Then $X \simeq *$ (contractible). Pf

$D+Y \xrightarrow{f} X$
& thm!