☆ Proof of the localization theorem:

☆ Step 1 $\mathrm{map}_*(B\mathbb{Z}/p, X) \simeq_{wk} * \Rightarrow$

a) $\mathrm{map}_*(BG, X) \simeq_{wk} *$ $\forall$ finite p-groups G

b) $\mathrm{map}_*(BG, X) \simeq_{wk} *$ $\forall$ locally finite p-groups G

a) G finite p-group $\neq e \Rightarrow$

$\exists N = \mathbb{Z}/p \leq Z(G)$: exact seq $1 \to N \to G \to G/N \to 1$

gives fibration seq $BN \to BG \to BG/N$

Zabrodsky lemma: $\mathrm{map}_*(BG, X) \simeq_{wk}$
$\mathrm{map}_*(BG/N, X) \simeq_{wk} *$
(induction on order)

b) $G = \varinjlim G_\alpha$: G_α finite p-group

$\therefore$ $\mathrm{map}_*(BG, X) = \varprojlim \mathrm{map}_*(BG_\alpha, X)$

$\simeq_{wk} *$.

Cor: G abelian p-torsion $\Rightarrow$
~~map~~ $\mathrm{map}_*(BG, X) \simeq_{wk} *$