Kan Seminar Talk1

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Contents

A   Hatcher

1.B $K(G,1)$ **Spaces and Graphs of Groups**

A path-connected space whose fundamental group is isomorphic to G and has a contractible universal covering space is a $K(G,1)$ space.

$\mathbb{R}P^\infty = K(\mathbb{Z}_2, 1) = S^\infty/\mathbb{Z}_2$.

We can also construct

$$(z_1, z_2, \cdots) \mapsto e^{2\pi i/m}(z_1, z_2, \cdots) \tag{1}$$

to obtain $K(\mathbb{Z}_m, 1)$.

$K(G,1) \times K(H,1) = K(G \times H, 1)$.

Theorem. The homotopy type of a CW complex $K(G,1)$ is uniquely determined by G.

4.E The Brown Representability Theorem

Theorem. Every reduced cohomology theory on the category of basepointed CW complexes and basepoint-preserving maps has the form $h^n(X) = \langle X, K_n \rangle$ for some Ω-spectrum $\{K_n\}$.