STARTING QUESTIONS FOR ALGEBRAIC TOPOLOGY I SPRING 2024

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- What is an element of $\pi_1(X, x_0)$ for $x_0 \in X$?
- State van Kampen's theorem about $\pi_1(A \cup B, x_0)$.
- Give the definition of $p\colon \tilde{X} \to X$ being a covering space.
- Let X be a space. What is a singular n-chain c in X, and what is its boundary $\partial_n(c)$?
- Explain how a map $f\colon X \to Y$ induces a chain map $f_\#\colon C_*(X) \to C_*(Y)$ and a homomorphism $f_*\colon H_n(X) \to H_n(Y)$ for each n.
- Give the definition of a CW complex X.