My Favorite Things

Sometimes I want to talk about my favorite things. Here are some of them:

1. Iced Cream
2. Regular Cream
3. Onion Cream
   - Ranch Cream
   - Dance Cream

But I like other *non-creams* too. Not **many**, but some.

Non-Creams

Theorem (*Cauchy's Integral Formula*):

Let U be an open subset of $\mathbb{C}$. Suppose the closed disk D, defined as

$$D := \{z : |z - z_0| \leq r\}$$

is completely contained in U. Let $f : U \to \mathbb{C}$ be holomorphic and let γ be the circle, oriented counterclockwise, forming the bounary of D. Then for every a in the interior of D:

$$f(a) = \frac{1}{2\pi i} \oint_\gamma \frac{f(z)}{z - a} \, \mathrm{d}z.$$

Theorem (*Mayer-Vietoris Sequence*):

Let X be a topological space and let A, B be two subspaces whose interiors cover X. For the singular homology triad (X, A, B) the following is a long exact sequence:

$$\cdots \to H_{n+1}(X) \xrightarrow{\delta_*} H_n(A \cap B) \hookrightarrow H_n(A) \oplus H_n(B) \hookrightarrow H_n(X) \to \cdots$$
$$\cdots \xrightarrow{\delta_*} H_0(A \cap B) \hookrightarrow H_0(A) \oplus H_0(B) \hookrightarrow H_0(X) \to 0.$$