$$\mathbb{S}_{mu}^{\wedge}$$

Imagine maps:

$$\mathrm{Map}_*^G(A, B)$$
$$\mathrm{Map}_*^G(A, B)$$

where $A, B \in \mathsf{Top}_*^G$ (where $\mathsf{Top}$ is a suitable category).

If $X \in \mathsf{Top}_*$ and $Y \in \mathsf{Top}$, we can form the spectra:

$$\Sigma^\infty X, \Sigma_+^\infty Y$$

and for a spectrum $Z \in \mathsf{Sp}$, we can form the pointed space:

$$\Omega^\infty Z$$

**THEOREM 1** (Pythagoras). $a^2 + b^2 = c^2$.

PROOF. Trivial $\qquad\square$

$\triangleleft$

**LEMMA 2** (Zorn's Lemma). *An poset $P \in \mathsf{Poset}$ where all chains are bounded above has a maximal element.*

PROOF. Axiom of choice. $\qquad\square$

$\triangleleft$

**PROPOSITION 3.** $\sqrt[3]{2}$ *is not a rational number.*

PROOF. Suppose it was. Then, there will be two integers $a, b \in \mathbb{Z}$ such that $a^3 + a^3 = b^3$. We will need the following:

**THEOREM 4** (Fermat's Last Theorem, due to Andrew Wiles). *The equation $a^n + b^n = c^n$ has no integer solutions when $n \geq 3$.*

PROOF. Trivial $\hfill$ [Theorem 4] $\square$

$\triangleleft$

We see that $\sqrt[3]{2}$ being rational produces a contradiction to Fermat's Last Theorem. Therefore, it must be irrational. $\hfill$ [Proposition 3] $\square$

$\triangleleft$

**REMARK 5** (Jordan curve theorem). It happens

IDEA. Duh $\qquad\square$

$\triangleleft$

$$\mathbb{S}, \mathcal{MU}, \mathit{tmf}, \mathcal{BP}, \mathcal{T}(n), \mathcal{K}(n), \mathcal{HZ}, \mathcal{E}_n$$
$$S, MU, tmf, BP, T(n), K(n), H\mathbb{Z}, E_n$$

**CLAIM 6.** *When $z \in \mathbb{C}$, we have that:*

$$e^z = e^{\mathcal{Re}(z)}(\cos \mathcal{Im}(z) + i \sin \mathcal{Im}(z))$$

$\triangleleft$

$$\mathrm{K}(\mathbb{Z}) \quad K \quad K \quad (n) \quad \mathcal{K}(n - \mathrm{cork}_p(\mathcal{F})) \quad \mathcal{K}(n) \quad \mathrm{K}(\mathbb{Z}) \quad \mathcal{K}(\infty)$$

$$\triangle\!\!\!\triangle$$

**AXIOM** (Axiom of Choice). FOR ANY COLLECTION OF NON-EMPTY SETS $\mathcal{S}$, THERE EXISTS A CHOICE FUNCTION $\phi : \mathcal{S} \to \bigcup\limits_{s \in \mathcal{S}} s$, SUCH THAT $\phi(s) \in s$. $\hfill \triangleleft$