

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

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 □

**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. □

**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 [Theorem 4] □

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

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

*Proof.* Duh □  
<

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

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

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

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

$$\Delta$$