

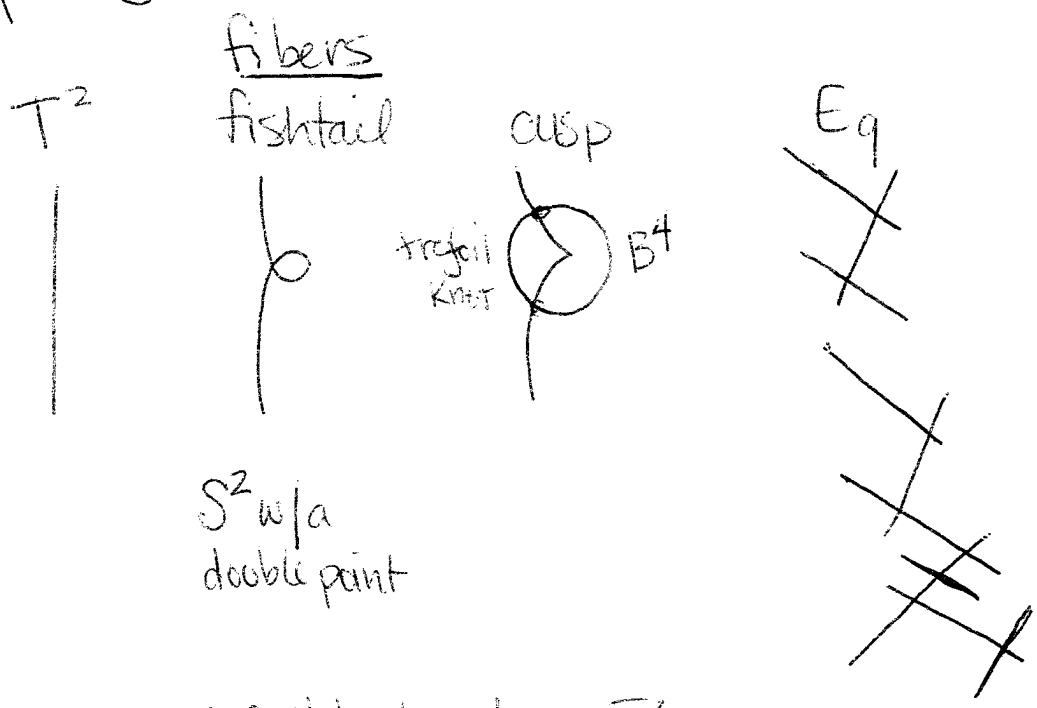
8/13/08

Robion Kirby: the history of calculus
(not Newton's)
Rob Kirby

K3 surface = elliptic surface

$\mathbb{C}P^1 = S^2$

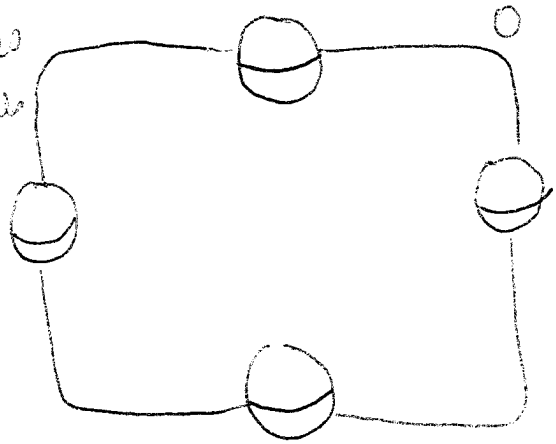
nonsingular fibers = T^2



S^2 w/a double point

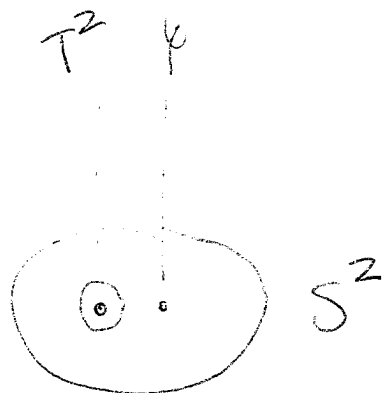
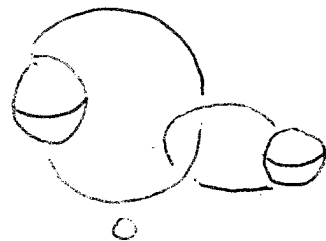
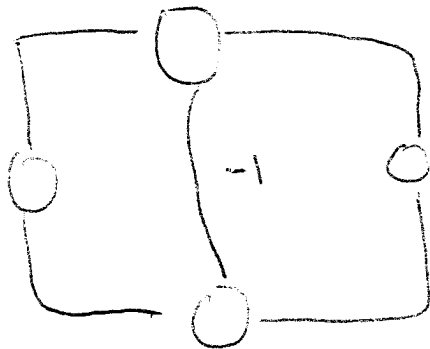
neighborhood of T^2

- 4 0-handles
- 4 1-handles
- 4 2-handles

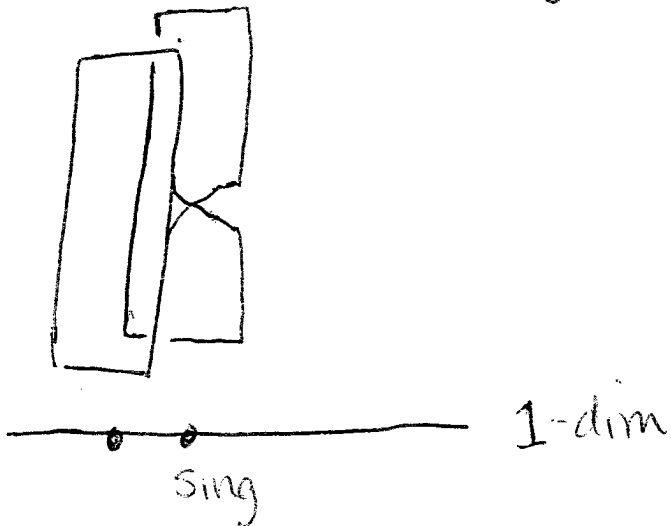


$T^2 \times B^2$

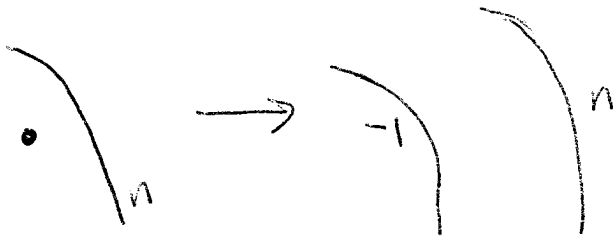
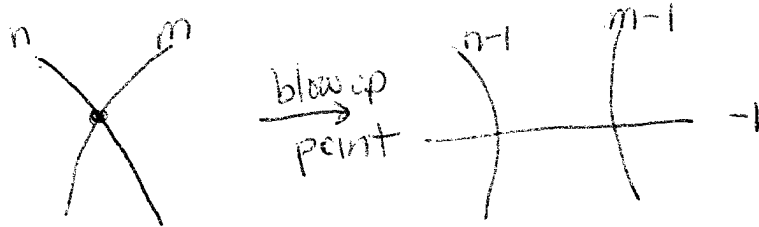
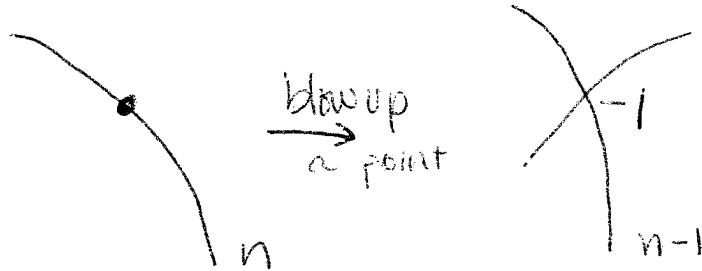
nbhd of fishtail



One-dim'l analogue



Blowing up & down



Slide 2-handle over 2-handle to get

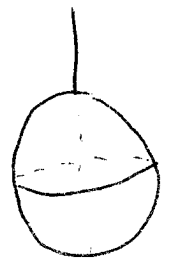
$$E(1) \stackrel{?}{=} \mathbb{C}P^2 \# 9\overline{\mathbb{C}P^2}$$

$$\frac{T^2 \times S^2}{\sigma}$$

σ on



&

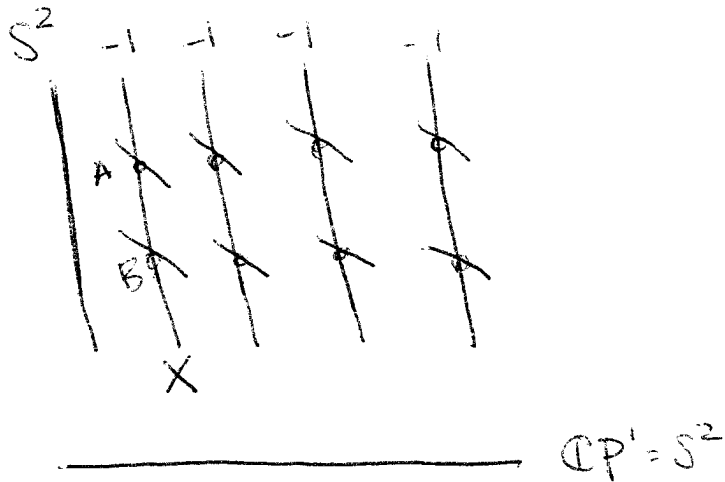


180°

130°

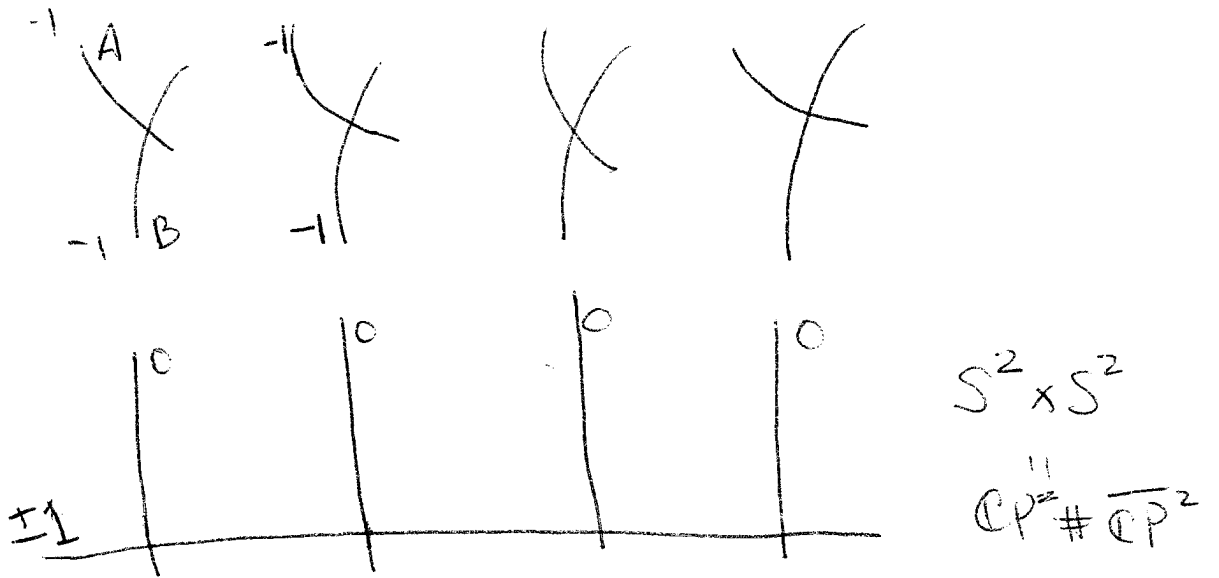
$$\downarrow$$

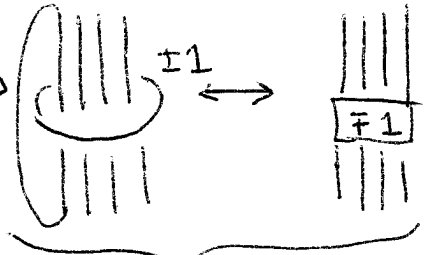
$$\frac{T^2}{\sigma}$$



$$(2X + A + B)^2 = 4X^2 + 4XA + 4XB + A^2 + B^2$$

$$4X^2 = 8 - 2 - 2$$



K_1 sliding handles \iff 

 K_2 blowing up or down

$L \iff L \cup \bigcirc \cong 1$

Given $M^3 = \partial X_1^4$
 $\quad \quad \quad = \partial X_2^4$, how were X_1 and X_2 related?

K-move
Fenn & Rourke