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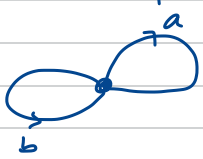
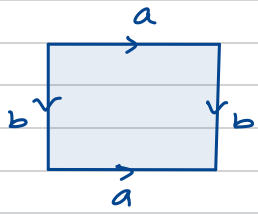
Exercises: Compute the homology of:

(I)



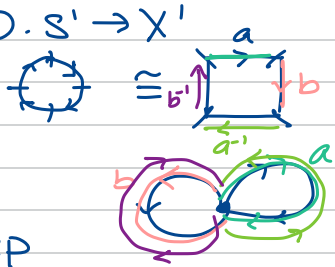
(II)



Interpretations:

(i) Take $[0,1]\times[0,1]$ and mod out by
- $(x,0)\sim(x,y)$ } Draw
- $(0,y)\sim(1,y)$ }

(ii) A CW complex with $X' = (I)$ and a 2-cell with $\Phi: S^1 \to X'$

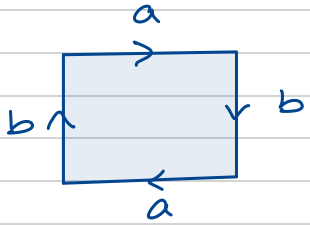


$$\partial_2: A \longrightarrow A_a \oplus A_b$$
$$c \longmapsto (c-c,\ c-c)$$
$$(0,\ 0)$$

So ∂_2 is the zero map

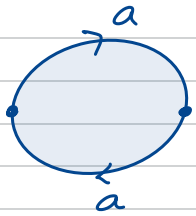
Still need to compute ∂_1, but can compute the homology of this

(III)



Draw?

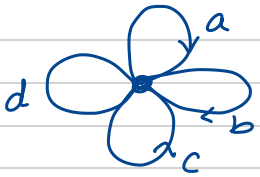
(IV)



$X' =$ 

Draw?

(V)



X'