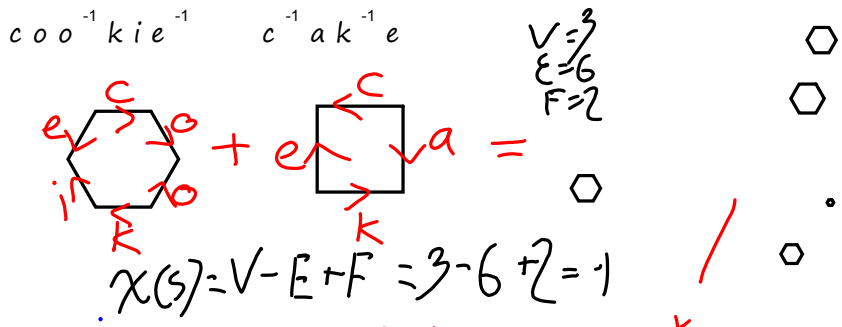
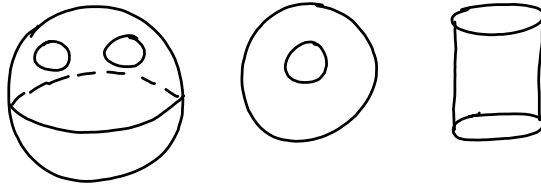


Genus:

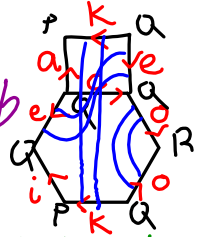
$\chi(s) = 2 - 2g - b$
 $2g = 2 - b - \chi(s)$
 $2g = 2 - 2 - 0$
 $2g = 0$
 $g = 0$

description:
 orientable surface
 of genus 0 with
 2 boundary components.
 ↳ sphere with 2 holes
 Annulus or a cylinder



$P \xrightarrow{a} Q$
 $2g = 2$
 $g = 1$

genus
 $\chi(s) = 2 - 2g - b$
 $2g = 2 - \chi(s) - b$
 $2g = 2 - (-1) - 1$

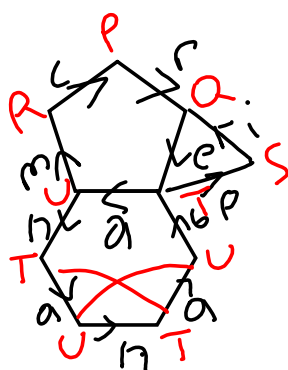


orientable surface of genus 1 with 1 boundary component

Or a sphere with 1 handle and 1 hole



banana cream pie



$V = 6$
 $E = 9$
 $F = 3$
 $\chi(S) = 6 - 9 + 3 = 0$
 non-orientable
 $P \rightarrow Q$ $B = 1$

$g = 2 - b - \chi(S)$
 $2 - 1 - 0 = 1 \Rightarrow 1 \text{ cross cap}$

mobius band

