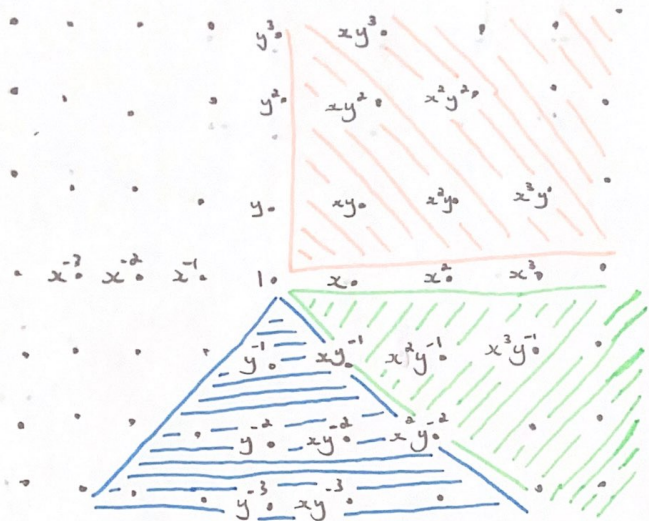


$$k[x, x^{-1}, y, y^{-1}]$$



$$k[x, y]$$

$$k[x, xy^{-1}]$$

$$\cong k[x, z]$$

$$z = xy^{-1}$$

$$k[xy^{-1}, y^{-1}, x^{-1}y^{-1}]$$

$$k[a, b, c]$$

$$(b^2 - ac)$$

singularity.
(0,0,0)

