

HW 6
Math 673

Due Friday, in class.

1. Read chapter 4 of *The Rising Sea: Foundations of Algebraic Geometry* (Ravi Vakil), 2022 version.
2. 4.1.A
3. restrictions
 - (a) Explain, using Definition 4.1.1 (and not exercise 4.1.A) what the restriction map is.
 - (b) Explain, using exercise 4.1.A what the restriction map is.
4. 4.1.D
5. Let $A = \mathbb{C}[x, y]$ and let $\mathfrak{p} = (y)$, viewed as a point of $X = \text{Spec}(A)$. What is $\mathcal{O}_{X,p}$? Recall that $\mathcal{O}_{X,p}$ is a local ring, that is, it has a unique maximal ideal, \mathfrak{m}_p . What is the residue field $\kappa_{\mathfrak{p}} = \mathcal{O}_{X,p}/\mathfrak{m}_p$?
6. ungraded but "essential": 4.4.A