

MATH 8254: ALGEBRAIC GEOMETRY II
HOMEWORK 6
DUE MONDAY, APRIL 24, 11:59 P.M.

INSTRUCTOR: SASHA VORONOV

Let $[V]$:= Vakil.04.01.2023 and $[G]$:= Gathmann 2002/03.

Review your course notes, study $[V]$: 21.7.A up to 21.7.B; $[G]$: 7.5.12-7.5.13, 7.6; $[V]$: 18.4.1-18.4.4, 18.5.3-18.5.4; $[G]$: 7.7.5-7.7.9. Perhaps, watching the April 10 lecture on the ramification index, see Media Gallery on Canvas, should help.

Do **Exercises** $[G]$: 7.8.8, 7.8.9, 7.8.10; $[V]$: 18.4.C*, 18.4.D, 18.5.A. **Here I mean Gathmann's 2002/03 course and Vakil's text version of 04/01/2023.**

*Regarding **18.4.C**: The exercise is somewhat sloppily worded. It is actually meant that the divisor of a nonzero rational section of an invertible sheaf (i.e., line bundle) is defined when the section does not have poles **and zeros** at singular closed points of the curve. And nonzero, more precisely, is meant to be **nonvanishing on each irreducible component** of the curve.

Submit the homework by the end of the due day, 11:59 p.m. Please submit it electronically to Gradescope at

<https://www.gradescope.com/courses/500650>,
which you can access through Canvas.