

changes from version 28/29 to 30:

Sec.2.1 boxed the Fact, added (4) to exercises

Sec.2.3 added Corollary 2.1 (same as Lemma 2.4)

Sec.2.4 added first footnote

Sec.2.4 final definition added $V(S)$ comment, and added defn of affine subvariety.

Sec.2.7 added final sentence to the proof.

Sec.2.11 added remark.

Sec.2.12 expanded last footnote.

Sec.2.13 final exercise (3): mentioned that dominant suffices

Sec.3.3 second definition expanded, defn of proj.subvariety

Sec.3.4 last exercise: fixed special case, also ok

Sec.3.5 fixed Warning, upgraded last exercise to a Lemma

Sec.3.6 moved first paragraph to 3.10

Sec.3.6 fixed first theorem

Sec.3.11 Lemma 3.4 fixed second half

Sec.4.3 added in remark that GL acts by left multiplication

Sec.5.4 fixed the map

Sec.6.0 new

Sec.6.1 and 6.3 removed the λ_i that appeared in the sums, as they were unnecessary.

Sec.6.4 final remark added a final sentence about what happened.

Sec.7.3 first Fact footnote: fixed (Urysohn's Lemma)

Sec.9.1 improved first paragraph by stating Corollary 9.1 explicitly

Sec.9.1. above Examples, added comment about what happens for linear subspaces of smaller dimension.

Sec.9.1 Example 4 improved explanation

Sec.9.2 second line was missing $[\dots]_m$ subscript

Sec.9.2 Example 2 need F irreducible

Sec.10.3 Lemma 10.7 simplified to considering just an affine variety rather than a qpv.

Sec.11.1 added defn of quasi-projective subvariety

Sec.11.1 Corollary: Y in A^m not A^n

Sec.11.1 fixed the Warning

Sec.11.2 lemma 11.1 cleaned up the statement

Sec.11.3 first bunch of Remarks: (3) added (previous 3 now inside 2). In Remark (4) fixed typo $k[X]_{\beta}$ is $k[Y]_{\beta}$.

Sec.11.3 second bunch of Remarks: (1) added final sentence about homogeneous localisation.

11.5 added sentence after Definition, referring to Lemma 10.7

12.2 Defn of birational map requires qpvs to be irreducible

12.3 in (4) added "irreducible"

12.3 Claim 1, last equation now in display style

12.3 proof of Claim 3 clarified $\mathcal{O}_X(U) = \mathcal{O}_U(U) = k[U]$

13.1 in Defn last F_n is F_N

13.1 improved picture

13.2 in proof, subclaim 2: clarified that $\bar{m}^2 = m^2 + I(X)$

14.1 Definition of proper transform: "or blowup of X at \emptyset ".

14.2 first Example: added (for $a=0$...) also edited last sentence

15.2 Motivation added at start, and below added "Notice all f in I will vanish..."

15.4 second Example, typo: open subset $V(p) \cap D_f$ of $V(p)$.

16. footnote on normal space: added the Example of a point.