Math 273 Homework #1, Fall 2010

Instructor: Ezra Miller

Solutions by: ...your name...

Collaborators: ...list those with whom you worked on this assignment...

Due: Tuesday 14 September 2010

READING ASSIGNMENTS in [Vakil]

- by Tuesday 7 September: §3.1, §3.2, §3.3, §3.4
- by Thursday 9 September: §3.5
- by Tuesday 14 September: §14.1, §14.2.2, §14.3.3, §14.3.D
- by Thursday 16 September: §3.6, §3.7

EXERCISES: In [Vakil], exercises have labels C.S.N, for "Chapter C, Section S, Exercise N", where $\mathrm{C}, \mathrm{S} \in \mathbb{Z}_+$ and $\mathrm{N} \in \mathrm{A}, \ldots, \mathrm{Z}$. It is not expected that everyone will complete all of the assigned exercises, but those marked "[required]" are essential.

3.2.C

3.2.G (a) [required]

(b)

(c) Demonstrate that 3.2.F is a special case of part (a) by considering the projection $Y \times X \to X$.

3.2.I

3.3.B [required] (Note: Most commonly, sheaf-hom is denoted using some form of calligraphy or math italics, such as $\mathcal{H}om(\mathcal{F}, \mathcal{G})$, since $\mathrm{Hom}(\mathcal{F}, \mathcal{G})$ is most often interpreted as the group of homomorphisms $\mathcal{F} \to \mathcal{G}$ between objects $\mathcal{F}$ and $\mathcal{G}$ in the category of sheaves.)

3.3.I [required]

3.4.E [required]

3.4.M

3.4.P [required]

3.5.A

3.5.B

3.5.C

3.5.E [The part about the global section functor not being exact is required]

3.5.F [required]

References

[Vakil] Ravi Vakil, *Foundations of algebraic geometry*, notes dated August 26, 2010.