

Exercise

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Exercise 1. Let $f : X \longrightarrow Y$ be a closed immersion between two noetherian schemes and \mathcal{F} is a coherent sheave on X , then $f_*\mathcal{F}$ is coherent.

Exercise 2. A topological space X is called a T_0 -space if for distinct points $x, y \in X$, then either there is a neighborhood of x not containing y , or there is a neighborhood of y not containing x . Show that

1. any scheme is a T_0 -space.
2. any quasi-compact T_0 -space has a closed point.
3. any open subset containing all closed points of a noetherian scheme must be the whole space.