

HOMEWORK #4

Due: March 11, 2026

1. (Hartshorne §II.5) All exercises except 3, 4, 18.
2. (Substitute for Hartshorne §II.5, Exercise 4.) Show that on a locally noetherian scheme X , a quasi-coherent \mathcal{O}_X -module is coherent iff it is locally of finite presentation iff it is finite type. (Do this first for affine X , i.e., for modules over a ring! The “only if” directions are clear, and true in general.)