

PROBLEM SET 5 (POSTED ON THURSDAY, FEBRUARY 12)

(All Exercises are references to the October 21, 2025 version of *Foundations of Algebraic Geometry* by R. Vakil.)

Problem 1. Exercise 16.2.C (very ample \otimes base-point-free is very ample)

Problem 2. Exercise 16.2.F (every line bundle on a projective scheme can be written in terms of very ample line bundles)

Problem 3. Exercise 16.2.G (finite pullbacks of ample line bundles are ample)