

A. Section 24 Exercise 8c, which is about the continuous image of a path-connected space. (This exercise is short or medium-length.)

B. For this problem, let \mathbb{R}^n have the Zariski topology (which was defined in our Day 02 Homework). In the case $n = 1$, prove that every subspace $Y \subseteq \mathbb{R}^n$ is compact. (This is a short or medium-length exercise.)

Epilogue: You are invited, but not required, to consider the $n = 2$ case as well.

C. Section 26 Exercise 5, which is about “separating” subspaces of a Hausdorff space. (This is a medium-length exercise. It’s fairly typical of this material.)