

BOWDOIN COLLEGE

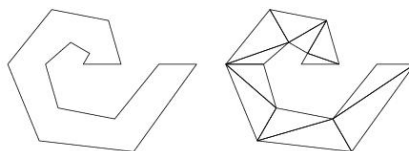
MATH 2603: INTRODUCTION TO ANALYSIS

PROF. THOMAS PIETRAHO

FALL, 2022

HOMEWORK 1

1. A polygon is said to be *convex* if it contains the line segment connecting any two of its points. A polygon can be *triangulated* if its vertices can be connected to each other by non-intersecting line segments in such a way that the entire polygon is divided entirely into triangles. The following is a triangulation of a non-convex polygon:



- (a) Prove that every convex polygon can be triangulated. **Hint:** Use induction.
- (b) Can *every* polygon be triangulated? If not, exhibit a counterexample. If so, prove it.