# Bowdoin College

Math 2603: Introduction to Analysis
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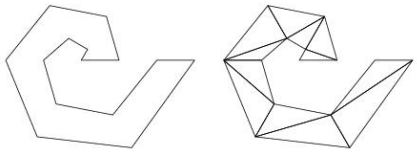
## Homework 1

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) **Extra Credit:** Can *every* polygon be triangulated? If not, exhibit a counterexample. If so, prove it.