

**MAT 402, Spring 2017, Challenge 1:** Use MathSciNet and/or the internet to give the citation for the following facts (the person who proved it, the name of the paper, and where and when it appeared).

- The Fourier series of a continuous function converges to the function almost everywhere (except on a set of Lebesgue measure zero).

- The boundary of the Mandelbrot set has Hausdorff dimension 2.

- If a finitely generated Kleinian group is geometrically infinite, then its limit set has dimension 2.

- Any planar graph can be four colored (the vertices can be colored with four different colors so that no two adjacent vertices have the same color).

- The dimension of harmonic measure on a simply connected planar domain is 1.