

General Mathematics and CPS II

Exercise 2

February 7, 2014

1. Let G be a finite connected planar graph with V its set of vertices, E its set of edges, and F its set of faces.
 - (a) Show that $2|E| \geq 3|F|$.
 - (b) Show that $|E| \leq 3|V| - 6$.
 - (c) Conclude that every planar graph must have at least one vertex of valency less than 6.
2. Write out the proof for Ivanov, p. 96, Lemma 5.