

Math 215 – Fall 2017

Practice Homework 20 (THE LAST HW!!!)– Assigned December 4th, due December 7th

Note: Remember that you must show your work to get full credit for a problem. Please read Sections 8.4 and 8.5 of the text as needed.

1. Section 8.4 #4
2. Section 8.4 #5
3. Suppose that a connected planar graph G has 8 vertices, each of degree 3. How many faces are there in a planar drawing of G ?
4. Let G be a connected planar graph with $v \geq 5$ vertices. Let the shortest cycle of G have length at least 5. Show that

$$e \leq \frac{5}{3}(v - 2).$$

5. Suppose that a planar graph G has k connected components, v vertices and e edges. How many faces are there in a planar drawing of G ?