Exercise Sheet 20

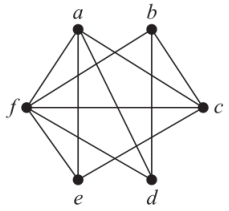
Discrete Mathematics, 2021.12.14

1. ([R], Page 726, Exercise 17) Suppose that a connected planar simple graph with e edges and v vertices contains no simple circuits of length 4 or less. Show that $e \leq (5/3)v - (10/3)$ if $v \geq 4$.

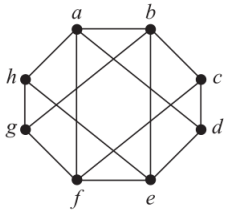
2. ([R], Page 725, Exercise 7, 9,Page 726, Exercise 23, 25) Judge whether the following simple graphs are planar or not: if the graph is planar, present a planar drawing of the graph. Otherwise, use Kuratowski's theorem to prove that it is not planar.

3. (Graph from [R], Page 725, Exercise 8) Use the algorithm that we learnt in class to test whether the graph 8 is a planar graph or not. Please describe necessary intermediate steps.

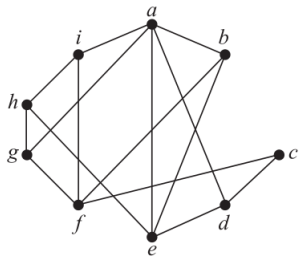
7.



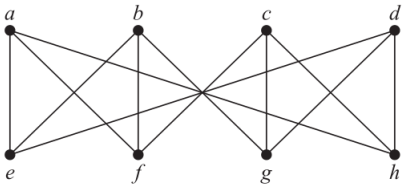
8.



9.



23.



25.