Assignment 4

COMPSCI 2214 - Discrete Structures for Computation
University of Western Ontario

March 26, 2022

Exercise 1. [2 marks] Determine $|V|$ for the following undirected graphs or multigraphs $G = (V, E)$.

(i) G has nine edges and all vertices have degree 3.

(ii) G is complete with 28 edges.

(iii) G has 10 edges, two vertices of degree 4, and all other vertices of degree 3.

(iv) G is a complete bipartite graph with 5 edges.

Exercise 2. [2 marks] Write an algorithm (pseudocode, or java, or python) which takes as input the adjacency matrix of an undirected graph and gives as output

- the list of the vertices with no incident edges,

- the list of vertices with only loops,

- the degrees of the vertices,

- the number of edges of the graph.

Exercise 3. [1 mark] Find all the integers between 0 and 11 which have an inverse modulo 12. Write their inverses.