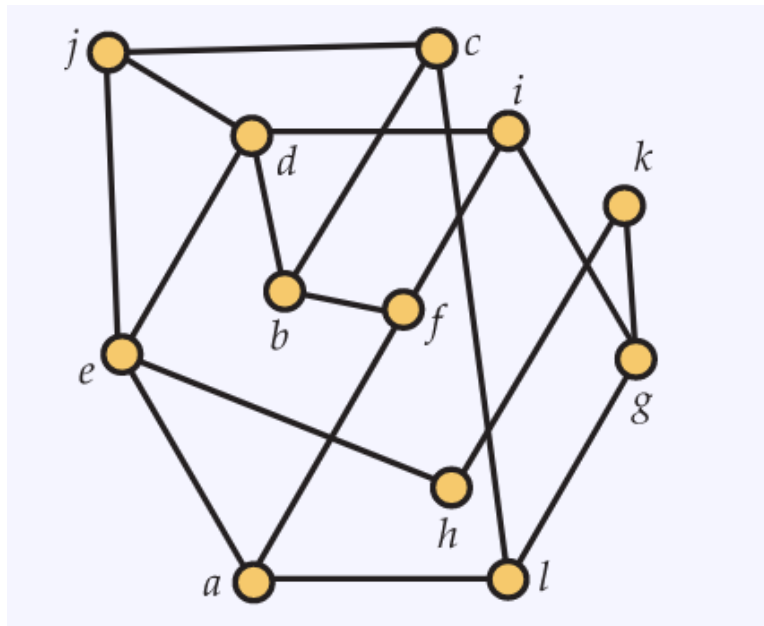


MATH 3012-QHS: Applied Combinatorics
Fall 2020
Worksheet 3

Name: _____

Due Date: Every Tuesday 11.59 pm

Problem 1. Is the graph below planar? If it is, find a drawing without edge crossings. If it is not give a reason why it is not?



Problem 2. Exhibit a planar drawing of an eulerian planar graph with 10 vertices and 21 edges.

Problem 3. We say that a relation R on a set X is symmetric if $(x, y) \in R$ implies $(y, x) \in R$ for all $x, y \in X$. If $X = \{a, b, c, d, e, f\}$, how many symmetric relations are there on X ? How many of these are reflexive?