UBC MATH CIRCLE 2024 PROBLEM SET 8

Problem 1. *Find all solutions to the equation $E + V + F = G + 2$ where E, V, F, G are positive integers and E, V, F all divide G.*

Problem 2. *A* population *on a graph is an assignment of positive integers to each vertex of the graph. A* perfect population *has the property that the population of each vertex is exactly 1/2 of the sum of the neighbouring populations. Find all perfectly populated (finite) graphs.*