

Problem 1: N-queens

Place n -queens on an $n \times n$ chessboard such that no queens attack each other.

Problem 2: Farmers Problem

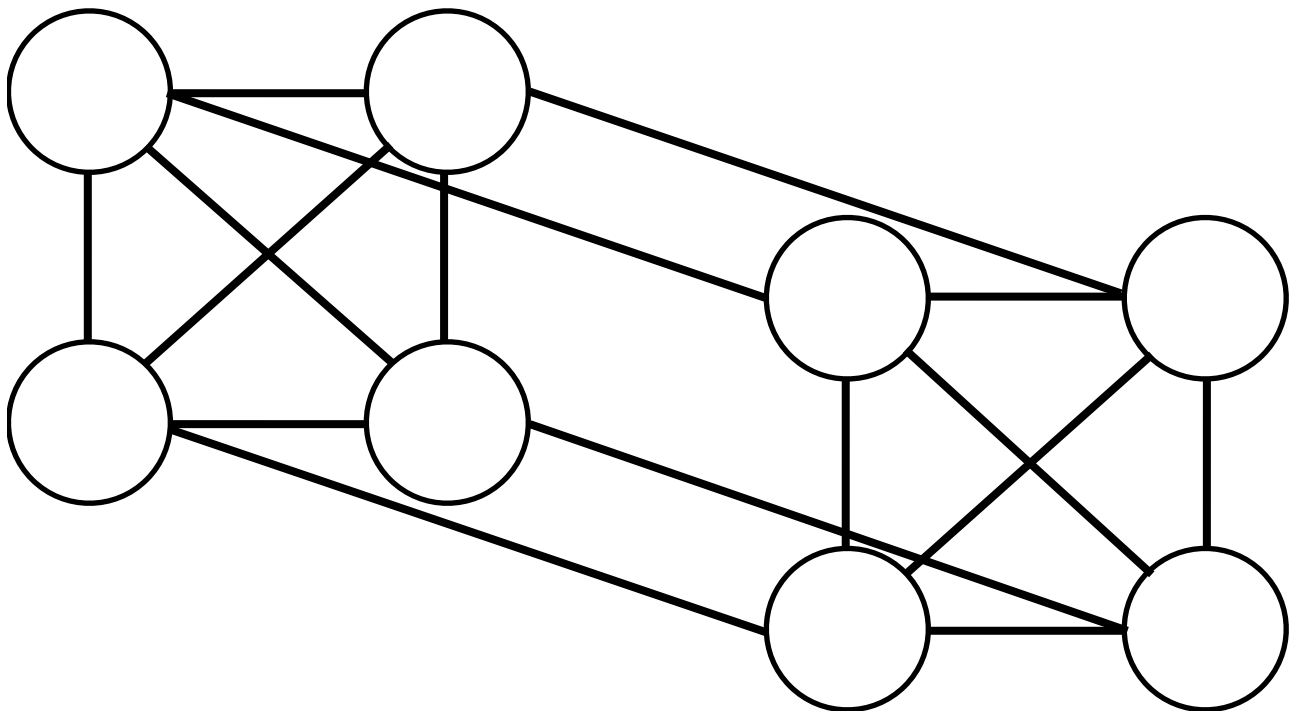
The problem is as follows: A farmer has 7 animals on his farm: pigs and hens. They all together have 22 legs. How many pigs (4 legs) and how many hens (2 legs) does the farmer have?

Problem 3: CRYPTOARITHMETIC

SEND + MORE = MONEY

all letters take different values from 0 to 9

Problem 4: K4 X P2 Graceful Graph



Find a labeling f of the nodes of a graph with q edges is graceful if f assigns each node a unique label from $0, 1, \dots, q$ and when each edge xy is labelled with $|f(x) - f(y)|$, the edge labels are all different.

Problem 5: Zebra Puzzle

1. There are five houses.
2. The Englishman lives in the red house.
3. The Spaniard owns the dog.
4. Coffee is drunk in the green house.
5. The Ukrainian drinks tea.
6. The green house is immediately to the right of the ivory house.
7. The Old Gold smoker owns snails.
8. Kools are smoked in the yellow house.
9. Milk is drunk in the middle house.
10. The Norwegian lives in the first house.
11. The man who smokes Chesterfields lives in the house next to the man with the fox.
12. Kools are smoked in the house next to the house where the horse is kept.
(should be "... in a house ...", see Discussion section)
13. The Lucky Strike smoker drinks orange juice.
14. The Japanese smokes Parliaments.
15. The Norwegian lives next to the blue house.

Now, who drinks water? Who owns the zebra?

In the interest of clarity, it must be added that each of the five houses is painted a different color, and their inhabitants are of different national extractions, own different pets, drink different beverages and smoke different brands of American cigarettes. In statement 6, *right* refers to the reader's right.