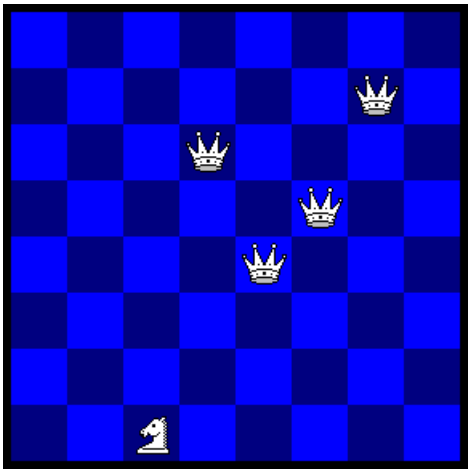
Chessboard Problems: The Solutions

Last update: 10/11/97

01.- J. Wallis, "The Strand Magazine", 1908

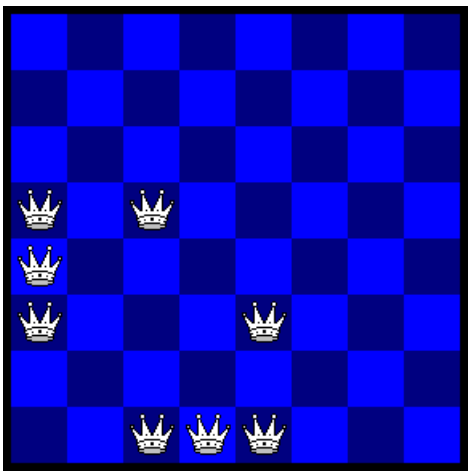


*Can you place **4 Queens and a Knight** so that **every** square on the board is either **occupied** or **attacked** ?*

Yes, you can, as seen in the diagram above.

Although there are several solutions to this kind of problem when given 4 Queens
and any other piece (King, Queen, Rook, Bishop, pawn),
this is the **only** known arrangement with a **Knight**.

02.- Unknown author, 1983

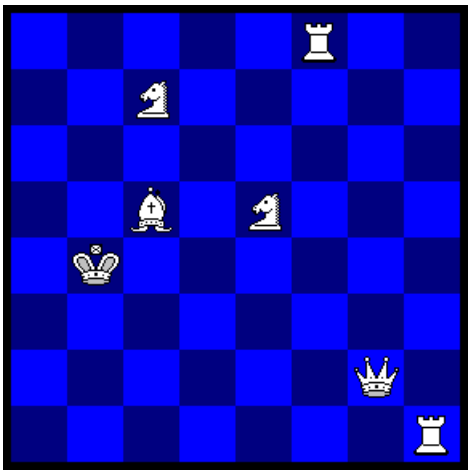


*Try and place **8 Queens** on the board so as to leave as many **unattacked** squares as possible.*

There are at least **6 basic solutions**, the exact number is not known. This is one of them.

There is no doubt that the **maximum number** of unattacked squares has to be **11**,
but no demonstration of this fact is known, either.

03.- Douglas G. Smith

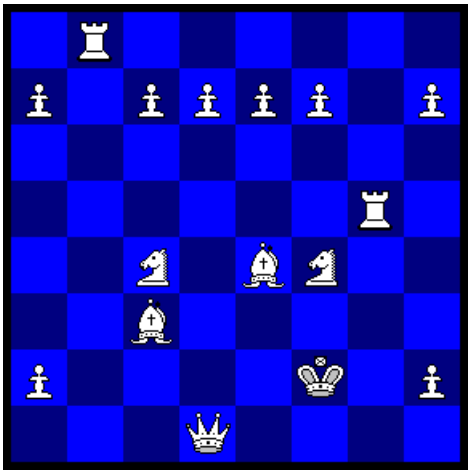


*Place only 7 **of the 8 major pieces** (that is, no pawns) on the chessboard
such that every square is either **occupied** or **attacked**.*

Apart from trivial exchanges, this is believed to be the **only one** basic solution.

As you can see above, all major pieces are present except for one **Bishop**.
It isn't known if it can be done leaving out a Knight or the King instead of the Bishop.

04.- Nenad Petrovic, 1942



*Place **all 16** White pieces on the board so that the number of possible **moves** is a **maximum**.*

This is the best solution known, and there are **122 moves** possible,
among them 24 pawn *promotions* (6 pawns x 4 different promotions each).

If you are interested, the maximum possible for the 8 major White pieces is **100 moves**.
For the combined 16 major White and Black pieces, it's **173 moves**.
Surprisingly, for all 32 pieces it's **only 164 moves !**.