Queens Help Index

How to Play

Commands

How To Play

The following topics explain how to play Queens:

Game Menu Commands

4 Queens ... 10 Queens
Choose one of these commands to start a new game using the specified number of queens. The menu item for the previously selected game is checked. If you choose one of these commands before completing a game, the current game is terminated and a new one is started.

Exit
Terminates the Queens program.

Playing the Game

The Queens game is based on the traditional puzzle of trying to arrange eight queens on a standard 8-square-by-8-square chess board so that no queen can attack any other queen. According to the rules of chess, a queen can attack along any row, column, or diagonal. To solve the puzzle, therefore, the player must position the queens so that there is one queen only on every row and one queen only on every column, without any queens sharing a diagonal.

The Queens game can be varied by using different numbers of queens. The number of squares on each side of the playing board should match the number of queens. For example, a six-queens game should be played on a 6-by-6 board because this is the minimum number of squares that can accommodate six queens placed in a winning arrangement.

When you run Queens, the program starts a game using four queens. To begin playing the game, simply drag each queen from the holder at the top of the window and drop it on a square within the playing board.

After you have placed a queen on the board, you are permitted to move it to another square or to return it to the holder. If you drop a queen outside the board or on top of another queen, the program immediately returns it to the holder.

Each time you place a queen on a square, the program checks the validity of your move. If one or more queens have already been placed within the same row, column, or diagonal, each of these queens is highlighted and the program beeps. You must then move the queen you just dropped either to another square on the board or back to the holder. The program does *not* allow you to leave this queen at the invalid position while you make other moves.

When you have successfully placed all the queens on the board, the program flashes the window and beeps, to celebrate your success.

To start a new game, choose one of the Queens commands (4 Queens through 10 Queens) from the Game menu. A new game begins that uses the indicated number of queens. The command starts a new game even if you have not yet solved the current game.

The objective of the game is to find as many solutions as possible for a given number of queens. The following table gives the number of possible solutions for each game:

Number of Queens	Total Number of Solutions
4	2
5	10
6	4
7	40
8	92
9	352
10	724

Strategy and Hints

When playing Queens, keep in mind that only one queen can be placed in each row. Therefore, you might proceed row by row, placing a queen at the first valid position within each row. If you reach a row that does not have a valid position, you must go back to the previous row and move its queen to the next valid position; if there is no such position, you must go back another row. Then resume placing queens in the following rows.

If you continue this process, you will eventually arrive at all the solutions to the puzzle, because you are systematically testing every possible arrangement according to the same method used by the computer's backtracking algorithm described previously. The problem is that this process can take quite a long time. (Even a fast computer can take several minutes to find the solutions to the ten-queens puzzle.) Therefore, you might want to proceed in a more haphazard manner, observing the pattern of queens, trusting your intuition, and testing your luck.