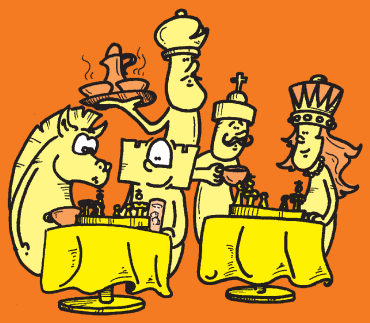


THE PUZZLING SIDE OF CHESS

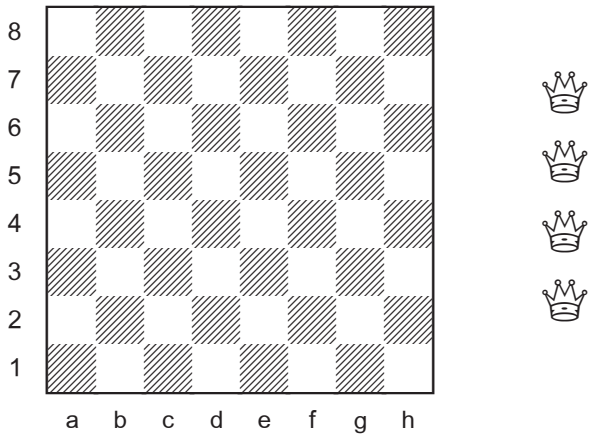
Jeff Coakley

QUEENFEST VIII: STILL COUNTING

number 110 May 28, 2016

This column presents three new construction tasks involving multiple queens. To solve these puzzles with real queens on an actual board, you will need a chess club full of sets. Using pawns in place of the queens is another option. But a digital board is probably easiest, if it allows more than nine queens.

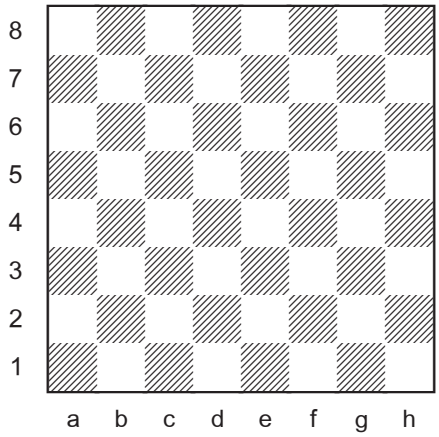
Queenfest 28



Place four queens on dark squares
so that every light square is attacked.

The goal in the next problem is to minimize the number of attacked squares. With 15 queens on the board, 58 is the minimum. The solution is semi-unique. For the double challenge, find both patterns.

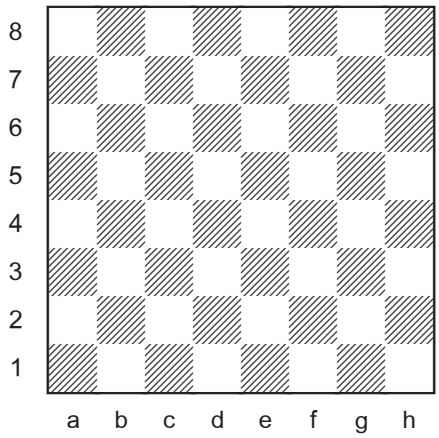
Queenfest 29



Place fifteen queens on the board
so that six squares are unattacked.

In our final puzzle, there is no requirement for the position to be legal. The number of queens is unlimited.

Queenfest 30



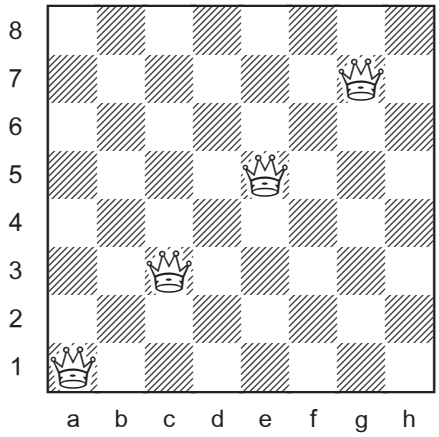
Compose a position with a white king
and the maximum number of queens
against a lone black king
so that there is a unique mate in one.
What is the maximum?

SOLUTIONS

All problems by J. Coakley, *Puzzling Side of Chess* (2016). Thanks to Caisay 4.1 (Adrian Storisteanu) for an assist on tasks 28 and 29.

PDF hyperlinks. You can advance to the solution of any puzzle by clicking on the underlined title above the diagram. To return to the puzzle, click on the title above the solution diagram.

Queenfest 28



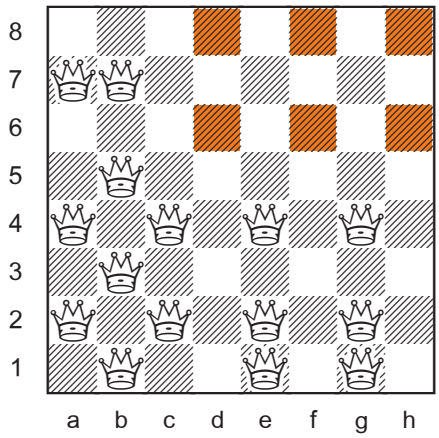
Every light square is attacked.

There are 17 patterns, all quite similar. No queens are on adjacent ranks or files.

Qa1 Qc3 Qe5 Qg7 (shown above)
Qa1 Qc3 Qe7 Qg5
Qa1 Qc5 Qe3 Qg7
Qa1 Qc7 Qe3 Qg5
Qa1 Qc7 Qe5 Qg3
Qa3 Qc1 Qe5 Qg7
Qa3 Qc1 Qe7 Qg5
Qa5 Qc1 Qe3 Qg7
Qa7 Qc1 Qe3 Qg5
Qa5 Qc1 Qe7 Qg3
Qa7 Qc1 Qe5 Qg3
Qa5 Qc3 Qe1 Qg7
Qa7 Qc3 Qe1 Qg5
Qa5 Qc7 Qe1 Qg3
Qa7 Qc5 Qe1 Qg3
Qa7 Qc3 Qe5 Qg1
Qa7 Qc5 Qe3 Qg1

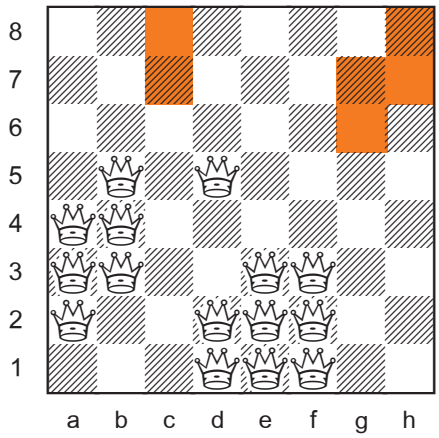
The solution is exactly the same for four rooks.

Queenfest 29



15 queens
6 squares unattacked

There are two patterns, shown above and below. They correspond exactly to the two patterns for 6 queens, 15 unattacked squares. See Queenfest II (column 60). Just switch the queens with the coloured squares.



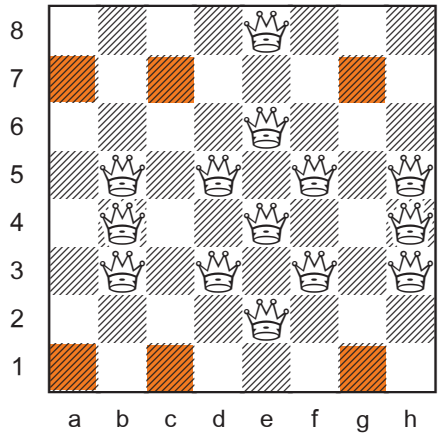
15 queens
6 squares unattacked

Six is also the maximum number of unattacked squares for fourteen queens. Here is the bonus puzzle.

Queenfest 29b

Place fourteen queens on the board
so that six squares are unattacked.

Queenfest 29b



14 queens
6 squares unattacked

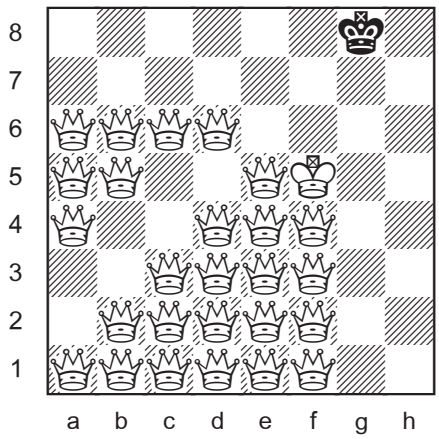
There are 42 patterns. Thirty of them are generated by removing any single queen from the two 15 queen patterns. The other twelve are listed below. The very cool pseudo-symmetrical formation* from the top of the list is shown above.

Qb3 Qb4 Qb5 Qd3 Qd5 Qe2 Qe4 Qe6 Qe8 Qf3 Qf5 Qh3 Qh4 Qh5 *
Qd5 Qd7 Qd8 Qe7 Qe8 Qf3 Qf7 Qf8 Qg3 Qg4 Qg8 Qh3 Qh4 Qh5
Qc5 Qc6 Qc7 Qc8 Qd6 Qd7 Qd8 Qe7 Qe8 Qg4 Qg5 Qh4 Qh5 Qh6
Qd6 Qe3 Qe6 Qe7 Qf3 Qf4 Qf7 Qf8 Qg3 Qg4 Qg8 Qh3 Qh4 Qh6
Qd6 Qd8 Qe6 Qe8 Qf4 Qf8 Qg3 Qg4 Qg5 Qg8 Qh3 Qh4 Qh5 Qh6
Qb7 Qb8 Qd5 Qd6 Qd8 Qf5 Qf7 Qf8 Qg2 Qg6 Qg8 Qh2 Qh5 Qh7
Qe4 Qe7 Qe8 Qf3 Qf5 Qf7 Qf8 Qg3 Qg4 Qg8 Qh3 Qh4 Qh5 Qh7
Qe5 Qe7 Qe8 Qf3 Qf7 Qf8 Qg3 Qg4 Qg7 Qg8 Qh3 Qh4 Qh5 Qh8
Qa5 Qa7 Qc5 Qc7 Qc8 Qe5 Qe7 Qe8 Qg5 Qg7 Qh2 Qh4 Qh6 Qh8
Qc7 Qc8 Qe5 Qe6 Qf2 Qf6 Qf7 Qg2 Qg5 Qg7 Qg8 Qh2 Qh6 Qh8
Qc8 Qe3 Qe6 Qf2 Qf6 Qf7 Qg2 Qg3 Qg7 Qg8 Qh2 Qh3 Qh6 Qh8
Qa2 Qa6 Qa8 Qb5 Qb7 Qb8 Qf5 Qf7 Qf8 Qg2 Qg6 Qg8 Qh2 Qh7

The following chart shows all the *Queenfest* results so far. Asterisks indicate unique patterns. The only values not verified by computer are most and fewest moves with twelve and thirteen queens.

	MOVES		SQUARES ATTACKED			
number of queens	most	fewest	most	most *Qs unguarded*	fewest	fewest *Qs unguarded*
1	27*	21	27*	27*	21	21
2	52	34	44*	42	33	34
3	77*	41*	54*	52	39	43
4	100	44*	61	58	40*	48
5	123	51*	64	59	47	52*
6	144	54*		58	49	54
7	163	57*		57	51*	56
8	182	59*		56	53	56
9	201	61*			54	
10	214*	64*			55	
11	225*	66			56	
12	236*	68*			57	
13	243*	67*			57*	
14					58	
15					58	

Queenfest 30



1.Qg7#

26 queens with a unique mate in 1

Until next time!