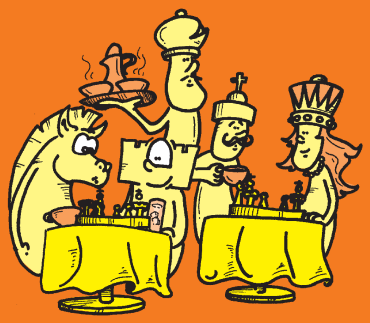


THE PUZZLING SIDE OF CHESS

Jeff Coakley

QUEENFEST II: SECOND TO NONE

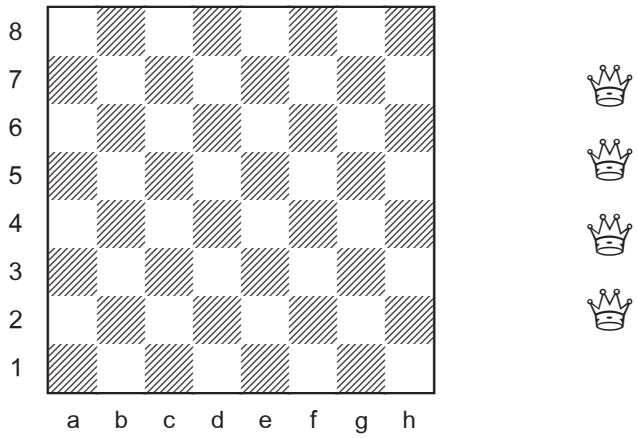
Plus Another Long Perp

number 60 January 25, 2014

This column continues where we left off last time, with more puzzles involving multiple queens. As before, the task is to arrange the queens on the board to achieve certain goals.

The solution pages also include the next problem in our series of “long perpetual checks”.

Queenfest 04 (four queens)



Place four queens on the board so that ...

4a. the most squares are attacked.

4b. the fewest squares are attacked.

As you know, a piece does not attack the square it stands on. In *part 4a*, it was necessary to have each queen guarded by another queen so that the maximum number of squares were attacked. In the following three parts of the puzzle, the queens are not allowed to guard each other.

Place four queens on the board so that none of them guard each other and ...

4c. the most squares are attacked.

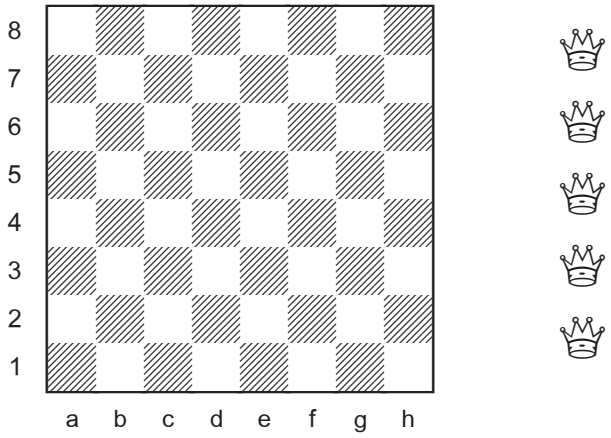
4d. the fewest squares are attacked.

4e. every empty square except the four corners is attacked.

It's probably no surprise that the next set of puzzles uses five queens. One of each kind: hearts, diamonds, clubs, spades, and stars!?

The most famous *five queen* puzzle, placing them so that all sixty-four squares are attacked, was featured in column 6.

Queenfest 05 (five queens)

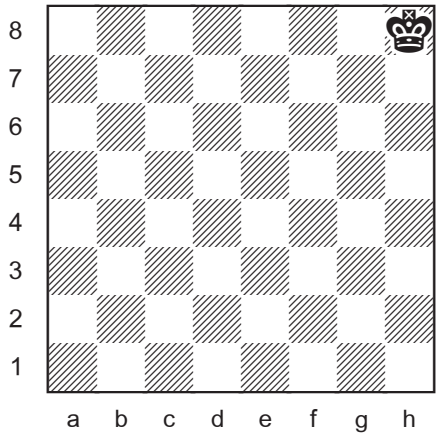


5a. Place five queens on the board so that the fewest squares are attacked.

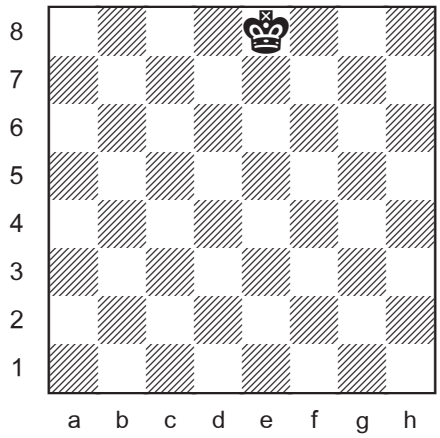
The solution to puzzle 5a is semi-unique. There are only two patterns and they are very distinct from each other. Perhaps you will want to search for both. (And here's an unsolicited hint. The number you seek is not even.)

5b. Place five queens on the board so that none of the queens guard each other and the fewest squares are attacked.

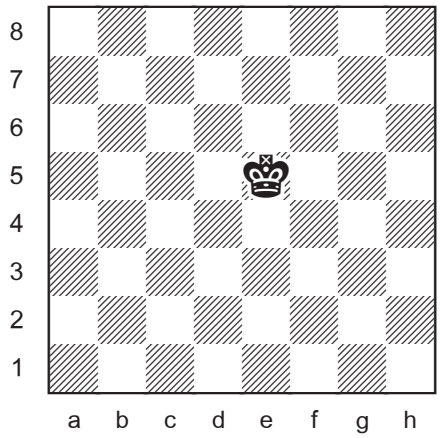
In the remaining three parts of this puzzle, the squares occupied by the queens must be attacked. In other words, every queen must be guarded.



5c. Place five queens on the board so that every square is attacked except h8.



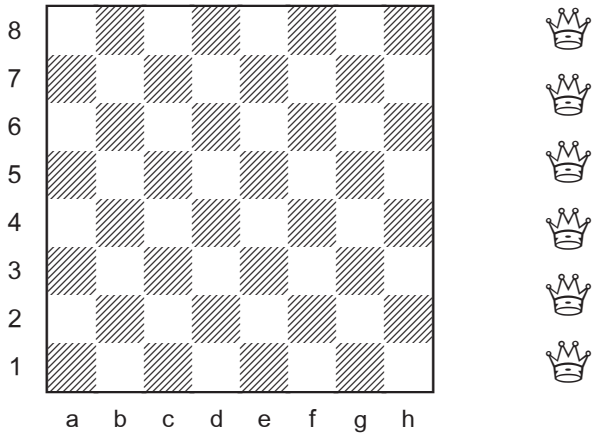
5d. Place five queens on the board so that every square is attacked except e8.



5e. Place five queens on the board so that every square is attacked except e5.

On to six queens now.

Queenfest 06 (six queens)



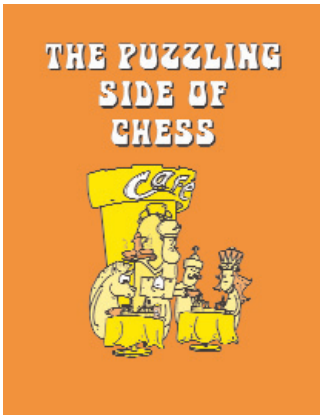
6a. Place six queens on the board so that the fewest squares are attacked.

The solution to puzzle 6a is semi-unique. There are two basic patterns. No hint this time.

6b. Place six queens on the board so that none of the queens guard each other and the fewest squares are attacked.

6c. Place six queens on the board so that none of the queens guard each other and every empty square except the four corners is attacked.

Stay tuned next month for *Queenfest III*.

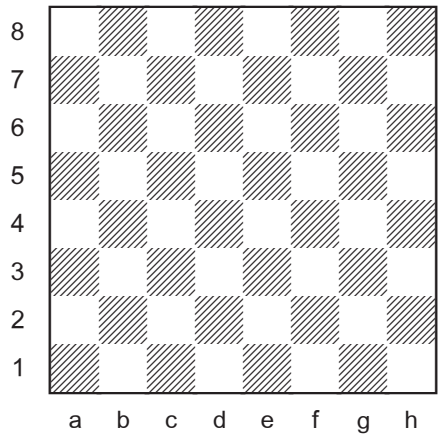


The Longest Perp

Last year's final column (57) ended with a construction task involving perpetual check. Two solutions were given last week (59) and the following new problem was also presented.

12d. Longest Perp Without Fifty Move Rule

Assume that the "fifty move rule" does not exist. Construct a position in which White draws by perpetual check and which maximizes the number of moves that must be played before Black has to concede a draw by threefold repetition.



The side playing for the draw (White) must make their best moves, aiming for the shortest draw. Black's goal is to avoid a draw as long as possible. An additional stipulation is that Black must have a winning advantage if White does not force a draw.

Once again, Norwegian IM Geir Sune Tallaksen Østmoe has sent in an excellent solution. It is a staggering 458 moves long! This record could be hard to break.

But we have not yet reached the logical conclusion of our quest for the longest perpetual check. Here is the new task.

12e. Longest Perp (with all standard rules in effect)

Construct a position in which White draws by perpetual check and which maximizes the number of moves that must be played before Black has to concede a draw, either by threefold repetition or by the fifty move rule.

As before, White must play for the shortest draw and Black must avoid a draw as long as possible. Black must also have a winning advantage if White does not force a draw.

A solution to this problem will be given at the end of February. If you feel inspired, please e-mail your position (with moves) to Chess Cafe.

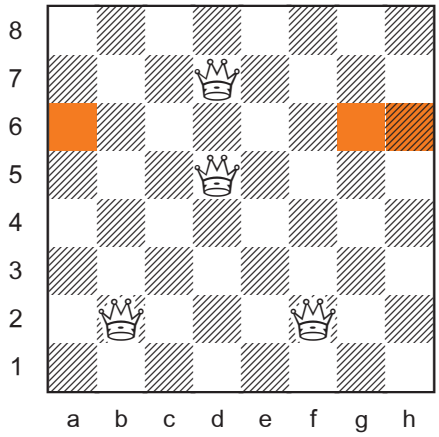
SOLUTIONS

All queenfest puzzles by J. Coakley, *ChessCafe.com* (2014).
In most cases, the optimal solutions were discovered with the assistance of Caisay 4.1.1, a computer program written by Adrian Storisteanu of Toronto. Thank you, sir.

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 04 (four queens)

4a
(most squares attacked)



61 squares are attacked.

The squares coloured in orange are not attacked: a6, g6, h6.

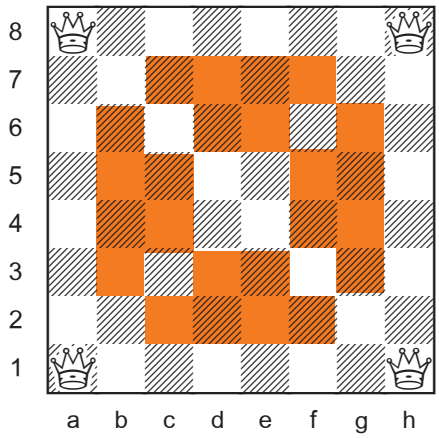
The solution is semi-unique. The only other pattern is:
Qb2 Qd5 Qe6 Qf2 (unguarded a4, c7, h7)

Both patterns can be reflected and/or rotated, giving sixteen "different" solutions.

These positions improve on the solution given in the first edition of *Winning Chess Puzzles For Kids Volume 2* by one square. (Qc6 Qd4 Qe5 Qf3: 60 squares attacked)

This puzzle could also be posed as a double negative: "Place four queens on the board so that the fewest squares are unguarded."

4b
(fewest squares attacked)

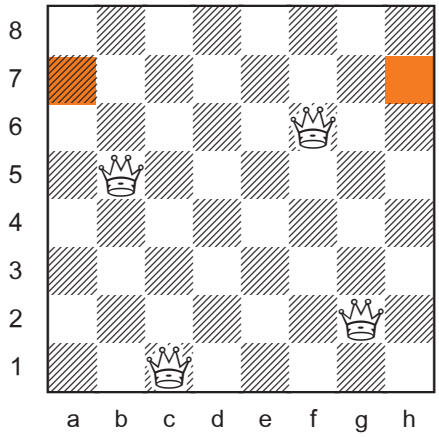


40 squares are attacked.

The 24 orange squares are not attacked.

The solution is unique. Because the position is completely symmetrical, no other solutions are created by rotation or reflection.

4c
(no queen guarded, most squares attacked)



58 squares are attacked.

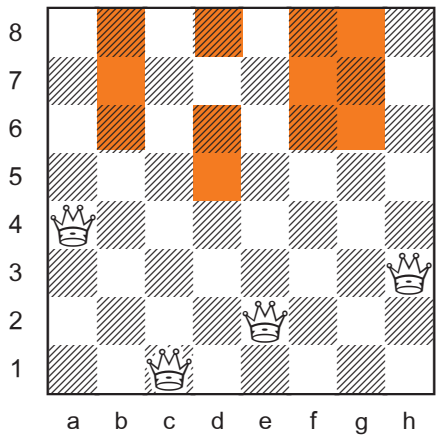
The only two empty squares which are not attacked are a7 and h7.

There are four solution patterns. The other three are:

Qa5 Qb1 Qe6 Qf2 (unguarded g7 h8)
Qa5 Qc1 Qe7 Qg3 (unguarded d4 h8)
Qb5 Qc1 Qe7 Qg2 (unguarded d4 h8)

4d

(no queen guarded, fewest squares attacked)



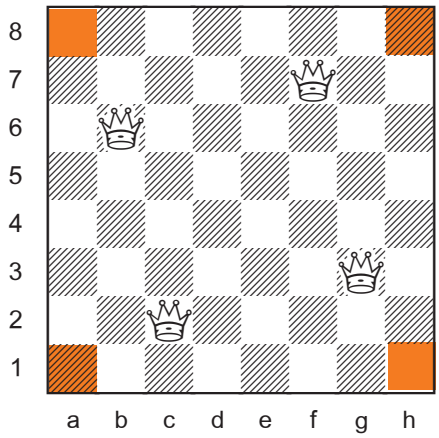
48 squares are attacked.

The twelve empty squares which are not attacked are in orange.

There are two solution patterns. The other one is:
Qa6 Qb3 Qc1 Qg2 (unguarded d4 d7 d8 e5 e7 e8 f5 f8 h4 h5 h7 h8)

4e

(no queen guarded, all empty squares except corners attacked)



All empty squares are attacked except the four corners.

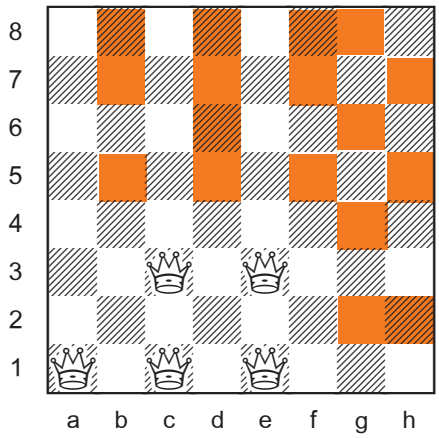
There are two solution patterns. In the position above, each queen is a “knight jump” from a corner. In the other pattern, the queens are a “camel jump” from the corners:

Qb5 Qd2 Qg4 Qe7

Queenfest 05 (five queens)

5a

(fewest squares attacked)

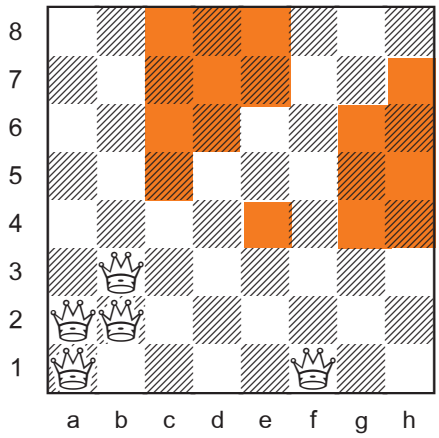


47 squares are attacked.

The 17 squares coloured in orange are not attacked.

The solution is semi-unique. The following diagram shows the only other pattern.

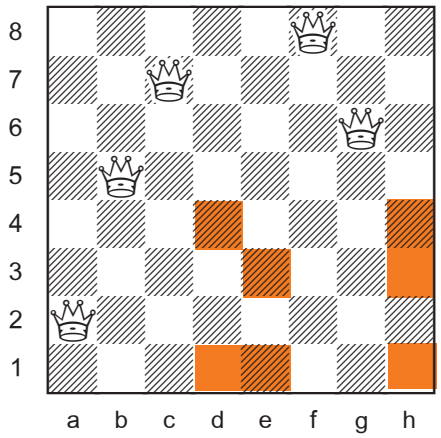
Both patterns can be reflected and/or rotated, giving sixteen “different” solutions.



As mentioned in the main text, the famous *five queen* puzzle in which the queens are placed so that all 64 squares are attacked was given in column 6 (*Board Domination*).

5b

(no queen guarded, fewest squares attacked)



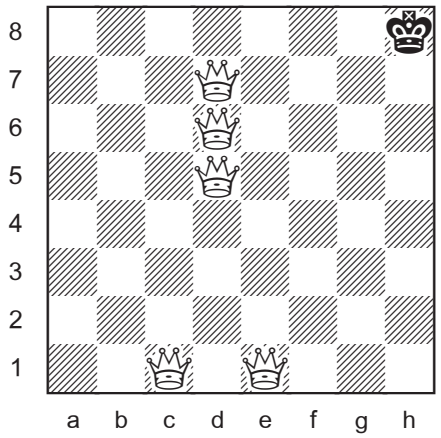
52 squares are attacked.

The seven empty squares which are not attacked are in orange.

The solution is unique. It is reflectible and rotatable.

5c

(every square attacked except h8)

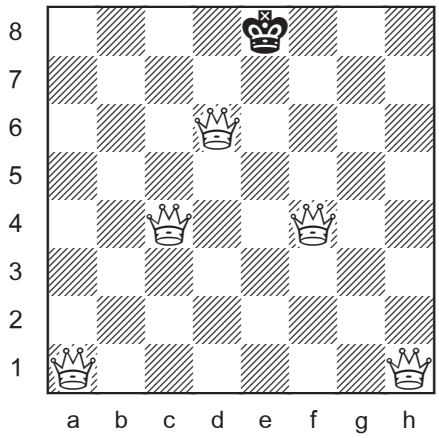


There are many solutions to this problem. Here are four others:
Qb1 Qb7 Qe3 Qf4 Qg5
Qc1 Qc7 Qe2 Qf3 Qg4
Qc1 Qc4 Qc7 Qf3 Qf7
Qa3 Qc1 Qc5 Qe7 Qg3

According to the stipulation of this puzzle, the five queens must all be guarded. Without that requirement, and ignoring the black king on h8, then a position such as Qa7 Qd2 Qd3 Qd7 Qh8 would also be a solution. In that case, the only square not attacked (h8) would be occupied by a queen.

5d

(every square attacked except e8)



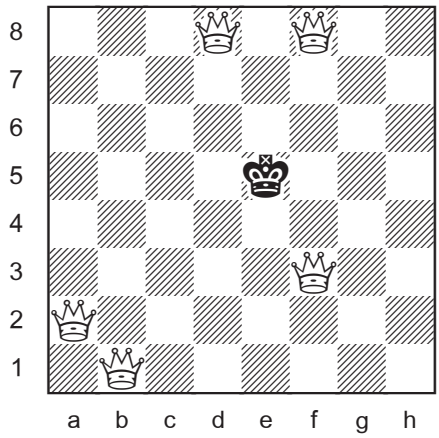
There are many solutions to this problem. Here are four others:

Qd2 Qd4 Qd5 Qd6 Qf5
Qc3 Qd3 Qd4 Qd5 Qd6
Qa3 Qb1 Qf4 Qf5 Qf6
Qa3 Qb2 Qc1 Qf5 Qg5

It is possible for five queens to be placed on the board so that any square is the only one not attacked.

5e

(every square attacked except e5)



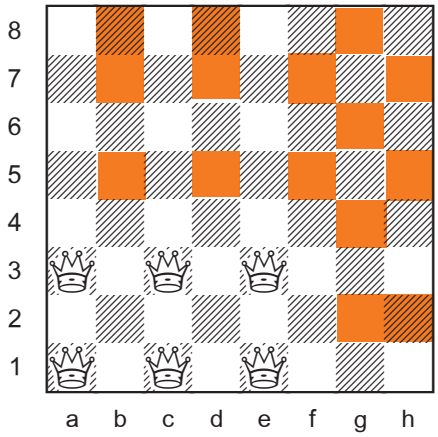
There are only three patterns for the solution. Here are the other two:

Qc1 Qc6 Qd2 Qg8 Qh7
Qa3 Qa6 Qd8 Qg6 Qh4

Queenfest 06 (six queens)

6a

(fewest squares attacked)



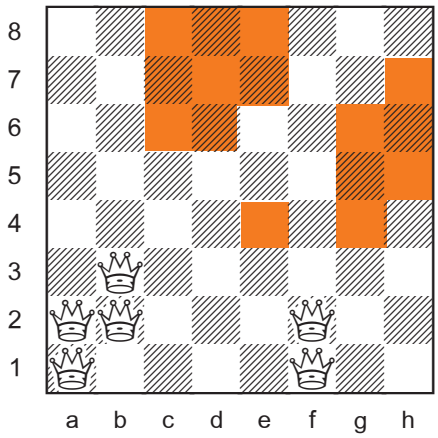
49 squares are attacked.

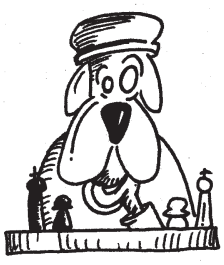
The 15 squares coloured in orange are not attacked.

The solution is semi-unique. The following diagram shows the only other pattern.

Both patterns can be reflected and/or rotated, giving sixteen "different" solutions.

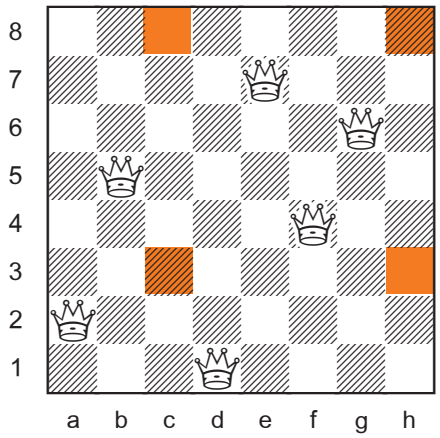
Both patterns are the same as in puzzle 5a with one queen added (on a3 and f2, respectively).





6b

(no queen guarded, fewest squares attacked)



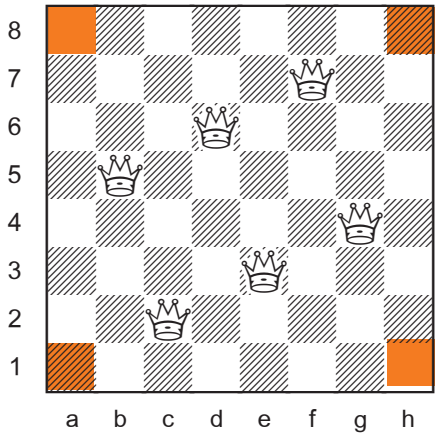
54 squares are attacked.

The four empty squares which are not attacked are in orange.

There are only three patterns for the solution. Here are the other two:
Qb2 Qc4 Qd1 Qf5 Qg3 Qh6 (unguarded a7 a8 e7 e8)
Qb5 Qc2 Qd6 Qe3 Qf7 Qg4 (unguarded a1 a8 h1 h8)

6c

(no queen guarded, all empty squares except corners attacked)



All empty squares are attacked except the four corners.

This is actually the third pattern for puzzle 6b. The position is symmetrical and is unique for this stipulation. It can be reflected left to right and/or rotated 90° for a total of four “different” solutions.

The Longest Perp

This problem is from column 59. The solution given here is the current record for the *longest perpetual check without the fifty move rule*.

The "matrix" of the position is derived from a 1972 endgame study by Serbian composer Dragutin Djaja (1920-1993).

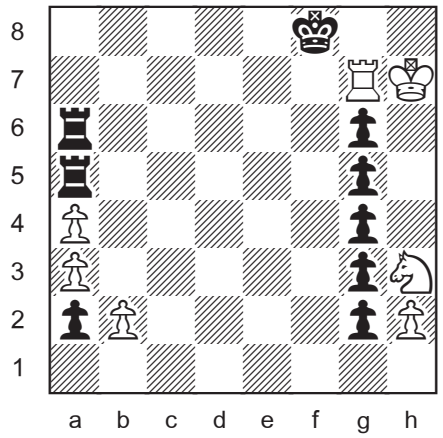
To provide some landmarks along the way, a diagram will be given after each capture.

12d

Geir Sune Tallaksen Østmoe 2014

ChessCafe.com

Assume that the "fifty move rule" does not exist. Construct a position in which White draws by perpetual check and which maximizes the number of moves that must be played before Black has to concede a draw by threefold repetition.



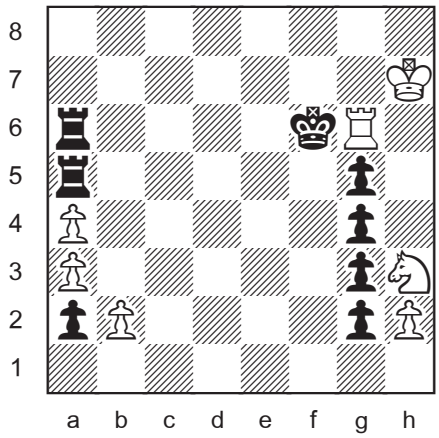
White to play and draw

The solution is **458 moves** long. Are you ready?

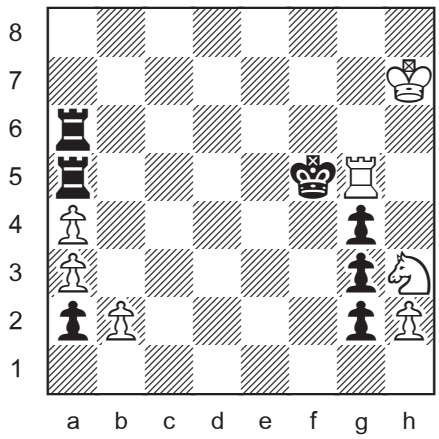
Black has a big material advantage and is threatening, among other things, to promote the a-pawn. White draws by continually checking with their rook along the g-file. The black king has lots of room to run, but nowhere to hide.

1.Rg8+ Kf7 2.Rg7+ Ke8 3.Rg8+ Ke7 4.Rg7+ Kd8 5.Rg8+ Kd7 6.Rg7+ Kc8 7.Rg8+ Kc7 8.Rg7+ Kb8 9.Rg8+ Kb7 10.Rg7+ Ka8 11.Rg8+ Ka7 12.Rg7+ Ka8 13.Rg8+ Ka7 14.Rg7+ Kb8 15.Rg8+ Kb7 16.Rg7+ Kc8 17.Rg8+ Kc7 18.Rg7+ Kd8 19.Rg8+ Kd7 20.Rg7+ Ke8 21.Rg8+ Ke7 22.Rg7+ Kf8 23.Rg8+ Kf7 24.Rg7+ Kf6 25.Rxg6+

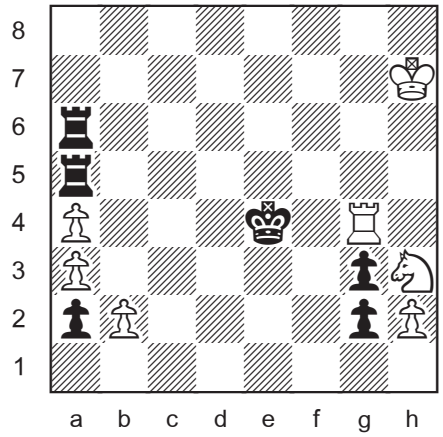
Every capture ensures that no previous position can be repeated.



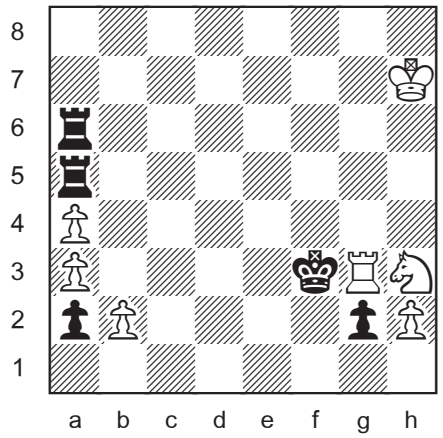
25...Kf7 26.Rg7+ Kf8 27.Rg8+ Ke7 28.Rg7+ Ke8 29.Rg8+ Kd7 30.Rg7+ Kd8 31.Rg8+ Kc7 32.Rg7+ Kc8 33.Rg8+ Kb7 34.Rg7+ Kb8 35.Rg8+ Ka7 36.Rg7+ Ka8 37.Rg8+ Ka7 38.Rg7+ Ka8 39.Rg8+ Kb7 40.Rg7+ Kb8 41.Rg8+ Kc7 42.Rg7+ Kc8 43.Rg8+ Kd7 44.Rg7+ Kd8 45.Rg8+ Ke7 46.Rg7+ Ke8 47.Rg8+ Kf7 48.Rg7+ Kf6 49.Rg6+ Kf5 50.Rxg5+



50...Kf6 51.Rg6+ Ke5 52.Rg5+ Ke6 53.Rg6+ Kd5 54.Rg5+ Kd6 55.Rg6+ Kc5 56.Rg5+ Kb6 57.Rg6+ Ka7 58.Rg7+ Ka8 59.Rg8+ Kb7 60.Rg7+ Kb8 61.Rg8+ Kc7 62.Rg7+ Kc8 63.Rg8+ Kd7 64.Rg7+ Kd8 65.Rg8+ Ke7 66.Rg7+ Ke8 67.Rg8+ Kf7 68.Rg7+ Kf8 69.Rg8+ Kf7 70.Rg7+ Kf8 71.Rg8+ Ke7 72.Rg7+ Ke8 73.Rg8+ Kd7 74.Rg7+ Kd8 75.Rg8+ Kc7 76.Rg7+ Kc8 77.Rg8+ Kb7 78.Rg7+ Kb8 79.Rg8+ Ka7 80.Rg7+ Kb6 81.Rg6+ Kc5 82.Rg5+ Kc6 83.Rg6+ Kd5 84.Rg5+ Kd6 85.Rg6+ Ke5 86.Rg5+ Ke6 87.Rg6+ Kf5 88.Rg5+ Ke4 89.Rxg4+



89...Ke5 90.Rg5+ Kd4 91.Rg4+ Kd5 92.Rg5+ Kc4 93.Rg4+ Kc5
94.Rg5+ Kb6 95.Rg6+ Ka7 96.Rg7+ Ka8 97.Rg8+ Kb7 98.Rg7+ Kb8
99.Rg8+ Kc7 100.Rg7+ Kc8 101.Rg8+ Kd7 102.Rg7+ Kd8
103.Rg8+ Ke7 104.Rg7+ Ke8 105.Rg8+ Kf7 106.Rg7+ Kf8
107.Rg8+ Kf7 108.Rg7+ Kf8 109.Rg8+ Ke7 110.Rg7+ Ke8
111.Rg8+ Kd7 112.Rg7+ Kd8 113.Rg8+ Kc7 114.Rg7+ Kc8
115.Rg8+ Kb7 116.Rg7+ Kb8 117.Rg8+ Ka7 118.Rg7+ Kb6
119.Rg6+ Kc5 120.Rg5+ Kc6 121.Rg6+ Kd5 122.Rg5+ Kd6
123.Rg6+ Ke5 124.Rg5+ Ke6 125.Rg6+ Kf5 126.Rg5+ Ke4
127.Rg4+ Kf3 128.Rxg3+

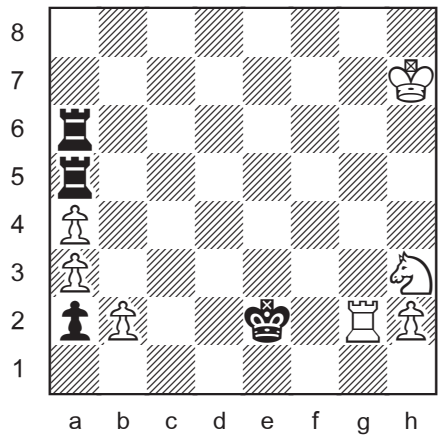


128...Ke4 129.Rg4+ Ke3 130.Rg3+ Kd4 131.Rg4+ Kd3
132.Rg3+ Kc4 133.Rg4+ Kc5 134.Rg5+ Kc6 135.Rg6+ Kd5
136.Rg5+ Kd6 137.Rg6+ Ke5 138.Rg5+ Ke6 139.Rg6+ Kf5
140.Rg5+ Kf6 141.Rg6+ Kf7 142.Rg7+ Kf8 143.Rg8+ Ke7
144.Rg7+ Ke8 145.Rg8+ Kd7 146.Rg7+ Kd8 147.Rg8+ Kc7
148.Rg7+ Kc8 149.Rg8+ Kb7 150.Rg7+ Kb8 151.Rg8+ Ka7
152.Rg7+ Ka8 153.Rg8+ Ka7 154.Rg7+ Ka8 155.Rg8+ Kb7
156.Rg7+ Kb8 157.Rg8+ Kc7 158.Rg7+ Kc8 159.Rg8+ Kd7
160.Rg7+ Kd8 161.Rg8+ Ke7 162.Rg7+ Ke8 163.Rg8+ Kf7

164.Rg7+ Kf6 165.Rg6+ Kf5 166.Rg5+ Ke6 167.Rg6+ Ke5
168.Rg5+ Kd6 169.Rg6+ Kd5 170.Rg5+ Kc6 171.Rg6+ Kc5
172.Rg5+ Kc4 173.Rg4+ Kd3 174.Rg3+ Kd4 175.Rg4+ Ke3
176.Rg3+ Ke4 177.Rg4+ Kf3 178.Rg3+ Ke2

If the *fifty move rule* were in effect, this would be the first place that White could claim a draw. 178 moves!

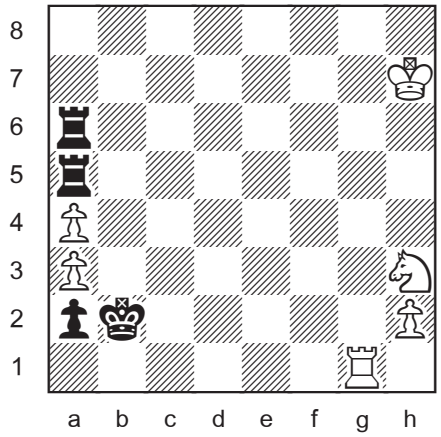
179.Rxg2+



179...Kf1 180.Rg1+ Ke2 181.Rg2+ Ke1 182.Rg1+ Kd2
183.Rg2+ Kd1 184.Rg1+ Kc2 185.Rg2+ Kb3 186.Rg3+ Kc4
187.Rg4+ Kd3 188.Rg3+ Kd4 189.Rg4+ Ke3 190.Rg3+ Ke4
191.Rg4+ Kf5 192.Rg5+ Kf6 193.Rg6+ Ke5 194.Rg5+ Ke6
195.Rg6+ Kd5 196.Rg5+ Kd6 197.Rg6+ Kc5 198.Rg5+ Kb6
199.Rg6+ Ka7 200.Rg7+ Ka8 201.Rg8+ Kb7 202.Rg7+ Kb8
203.Rg8+ Kc7 204.Rg7+ Kc8 205.Rg8+ Kd7 206.Rg7+ Kd8
207.Rg8+ Ke7 208.Rg7+ Ke8 209.Rg8+ Kf7 210.Rg7+ Kf8
211.Rg8+ Kf7 212.Rg7+ Kf8 213.Rg8+ Ke7 214.Rg7+ Ke8
215.Rg8+ Kd7 216.Rg7+ Kd8 217.Rg8+ Kc7 218.Rg7+ Kc8
219.Rg8+ Kb7 220.Rg7+ Kb8 221.Rg8+ Ka7 222.Rg7+ Kb6
223.Rg6+ Kc5 224.Rg5+ Kc6 225.Rg6+ Kd5 226.Rg5+ Kd6
227.Rg6+ Ke5 228.Rg5+ Ke6 229.Rg6+

Another fifty moves have been played without a capture or pawn move. The next capture is on move 242.

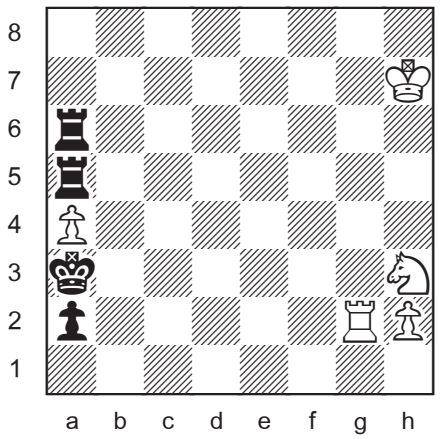
229...Kf5 230.Rg5+ Ke4 231.Rg4+ Ke3 232.Rg3+ Kd4
233.Rg4+ Kd3 234.Rg3+ Kc4 235.Rg4+ Kb3 236.Rg3+ Kc2
237.Rg2+ Kd1 238.Rg1+ Ke2 239.Rg2+ Ke1 240.Rg1+ Kd2
241.Rg2+ Kc1 242.Rg1+ Kxb2



243.Rg2+ Kb1 244.Rg1+ Kc2 245.Rg2+ Kc1 246.Rg1+

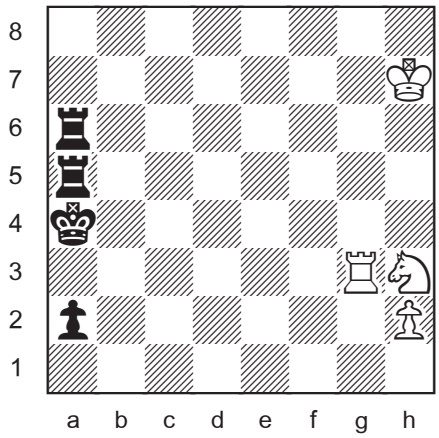
(246.Rxa2? loses to 246...Rh5+ 247.Kg7 Rxh3.)

246...Kd2 247.Rg2+ Kd1 248.Rg1+ Ke2 249.Rg2+ Kf3
250.Rg3+ Ke4 251.Rg4+ Ke3 252.Rg3+ Kd4 253.Rg4+ Kd3
254.Rg3+ Kc4 255.Rg4+ Kc5 256.Rg5+ Kc6 257.Rg6+ Kd5
258.Rg5+ Kd6 259.Rg6+ Ke5 260.Rg5+ Ke6 261.Rg6+ Kf5
262.Rg5+ Kf6 263.Rg6+ Kf7 264.Rg7+ Kf8 265.Rg8+ Ke7
266.Rg7+ Ke8 267.Rg8+ Kd7 268.Rg7+ Kd8 269.Rg8+ Kc7
270.Rg7+ Kc8 271.Rg8+ Kb7 272.Rg7+ Kb8 273.Rg8+ Ka7
274.Rg7+ Ka8 275.Rg8+ Ka7 276.Rg7+ Ka8 277.Rg8+ Kb7
278.Rg7+ Kb8 279.Rg8+ Kc7 280.Rg7+ Kc8 281.Rg8+ Kd7
282.Rg7+ Kd8 283.Rg8+ Ke7 284.Rg7+ Ke8 285.Rg8+ Kf7
286.Rg7+ Kf6 287.Rg6+ Kf5 288.Rg5+ Ke6 289.Rg6+ Ke5
290.Rg5+ Kd6 291.Rg6+ Kd5 292.Rg5+ Kc6 293.Rg6+ Kc5
294.Rg5+ Kc4 295.Rg4+ Kc3 296.Rg3+ Kd4 297.Rg4+ Kd3
298.Rg3+ Ke4 299.Rg4+ Ke3 300.Rg3+ Ke2 301.Rg2+ Ke1
302.Rg1+ Kd2 303.Rg2+ Kd1 304.Rg1+ Kc2 305.Rg2+ Kc1
306.Rg1+ Kb2 307.Rg2+ Kxa3



308.Rg3+ Kb2 309.Rg2+ Kb1 310.Rg1+ Kc2 311.Rg2+ Kc1
312.Rg1+ Kd2 313.Rg2+ Kd1 314.Rg1+ Ke2 315.Rg2+ Kf3
316.Rg3+ Ke4 317.Rg4+ Ke3 318.Rg3+ Kd4 319.Rg4+ Kd3
320.Rg3+ Kc4 321.Rg4+ Kc3 322.Rg3+ Kb4 323.Rg4+ Kc5
324.Rg5+ Kc6 325.Rg6+ Kd5 326.Rg5+ Kd6 327.Rg6+ Ke5
328.Rg5+ Ke6 329.Rg6+ Kf5 330.Rg5+ Kf6 331.Rg6+ Kf7
332.Rg7+ Kf8 333.Rg8+ Ke7 334.Rg7+ Ke8 335.Rg8+ Kd7
336.Rg7+ Kd8 337.Rg8+ Kc7 338.Rg7+ Kc8 339.Rg8+ Kb7
340.Rg7+ Kb8 341.Rg8+ Ka7 342.Rg7+ Ka8 343.Rg8+ Ka7
344.Rg7+ Ka8 345.Rg8+ Kb7 346.Rg7+ Kb8 347.Rg8+ Kc7
348.Rg7+ Kc8 349.Rg8+ Kd7 350.Rg7+ Kd8 351.Rg8+ Ke7
352.Rg7+ Ke8 353.Rg8+ Kf7 354.Rg7+ Kf6 355.Rg6+ Kf5
356.Rg5+ Ke6 357.Rg6+ Ke5 358.Rg5+ Kd6 359.Rg6+ Kd5
360.Rg5+ Kc6 361.Rg6+ Kc5 362.Rg5+ Kb4 363.Rg4+ Kb3
364.Rg3+ Kc4 365.Rg4+ Kc3 366.Rg3+ Kd4 367.Rg4+ Kd3
368.Rg3+ Ke4 369.Rg4+ Ke3 370.Rg3+ Ke2 371.Rg2+ Ke1
372.Rg1+ Kd2 373.Rg2+ Kd1 374.Rg1+ Kc2 375.Rg2+ Kc1
376.Rg1+ Kb2 377.Rg2+ Ka3 378.Rg3+ Kxa4

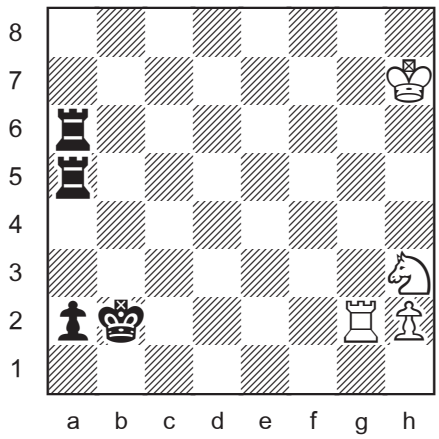
The last capture.



379.Rg4+ Kb5 380.Rg5+ Kb6 381.Rg6+ Kc5 382.Rg5+ Kc6
383.Rg6+ Kd5 384.Rg5+ Kd6 385.Rg6+ Ke5 386.Rg5+ Ke6
387.Rg6+ Kf5 388.Rg5+ Kf6 389.Rg6+ Kf7 390.Rg7+ Kf8
391.Rg8+ Ke7 392.Rg7+ Ke8 393.Rg8+ Kd7 394.Rg7+ Kd8
395.Rg8+ Kc7 396.Rg7+ Kc8 397.Rg8+ Kb7 398.Rg7+ Kb8
399.Rg8+ Ka7 400.Rg7+ Ka8 401.Rg8+ Ka7 402.Rg7+ Ka8
403.Rg8+ Kb7 404.Rg7+ Kb8 405.Rg8+ Kc7 406.Rg7+ Kc8
407.Rg8+ Kd7 408.Rg7+ Kd8 409.Rg8+ Ke7 410.Rg7+ Ke8
411.Rg8+ Kf7 412.Rg7+ Kf6 413.Rg6+ Kf5

414.Rg5+ Ke6 415.Rg6+ Ke5 416.Rg5+ Kd6 417.Rg6+ Kd5
418.Rg5+ Kc6 419.Rg6+ Kc5 420.Rg5+ Kb6 421.Rg6+ Kb5
422.Rg5+ Ka4 423.Rg4+ Ka3 424.Rg3+ Kb4 425.Rg4+ Kb3
426.Rg3+ Kc4 427.Rg4+ Kc3 428.Rg3+ Kd4 429.Rg4+ Kd3
430.Rg3+ Ke4 431.Rg4+ Ke3 432.Rg3+ Ke2 433.Rg2+ Ke1
434.Rg1+ Kd2 435.Rg2+ Kd1 436.Rg1+ Kc2 437.Rg2+ Kc1
438.Rg1+ Kb2 439.Rg2+

The first time in this position.



439...Ka1 440.Rg1+ Kb2 441.Rg2+

The second time.

442...Kb1 442.Rg1+ Kc2 443.Rg2+ Kc1 444.Rg1+ Kd2
445.Rg2+ Kd1 446.Rg1+ Ke2 447.Rg2+ Kf3 448.Rg3+ Ke4
449.Rg4+ Ke3 450.Rg3+ Kd4 451.Rg4+ Kd3 452.Rg3+ Kc4
453.Rg4+ Kc3 454.Rg3+ Kb4 455.Rg4+ Kb3 456.Rg3+ Ka4
457.Rg4+ Ka3 458.Rg3+ Kb2 ½-½

Here, before playing 459.Rg2+, White can claim a draw by threefold repetition. Whew!

Attention, chess engineers. We are now accepting bids for construction task 12e? Can you set the record for the *longest perpetual check* with all standard rules in effect?

Until next time!