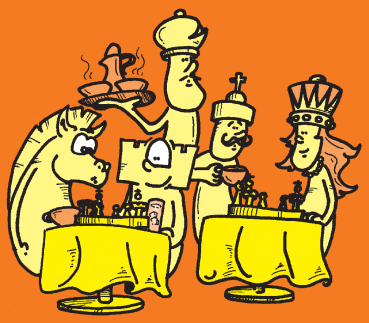


THE PUZZLING SIDE OF CHESS

Jeff Coakley

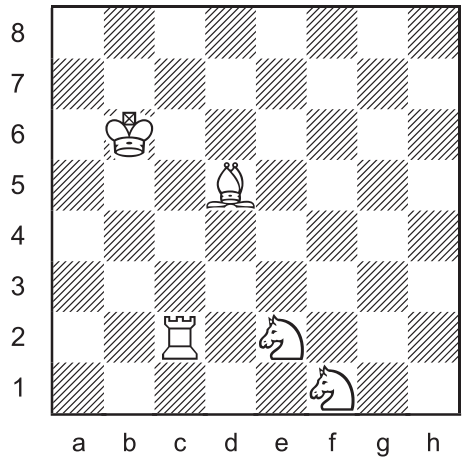
THE NUMBER 64

number 73 November 15, 2014

Welcome to another cafe smorgasbord of puzzles. Our special menu this week celebrates somebody's sixty-fourth birthday.

The types of puzzles presented in this column have appeared previously on *The Puzzling Side of Chess*. If you are unfamiliar with any of them, examples with more detailed explanations are available in the archives.

Triple Loyd 39



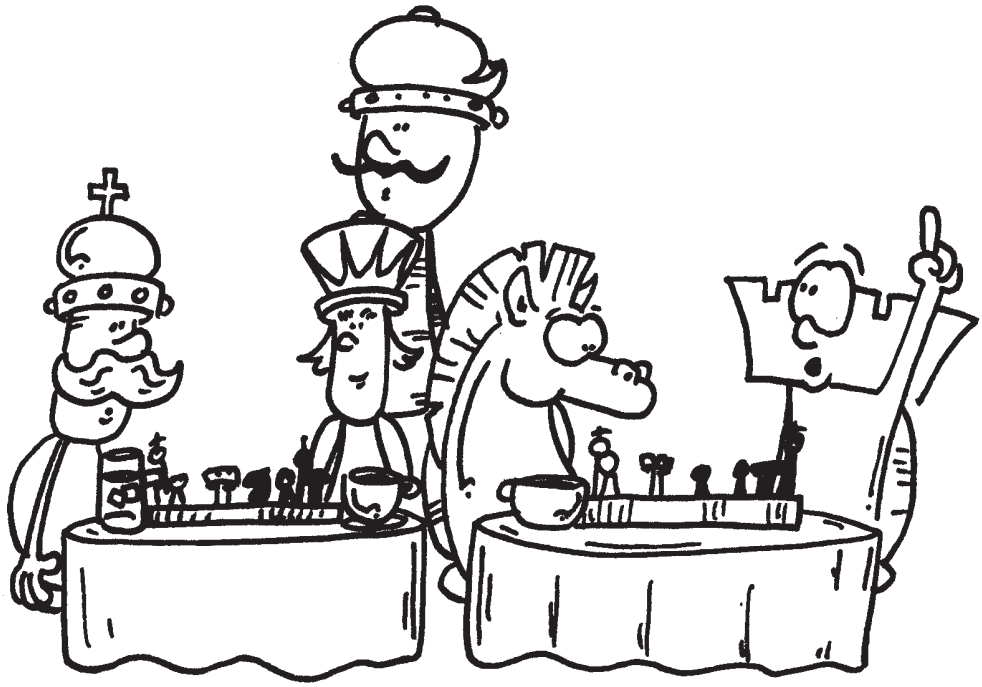
Place the black king on the board so that:

A. Black is in checkmate.
B. Black is in stalemate.
C. White has a mate in 1.

The number 64 is interesting in many ways. For example, it is the smallest number which is both a perfect square and a perfect cube.

$$64 = 8^2 = 4^3$$

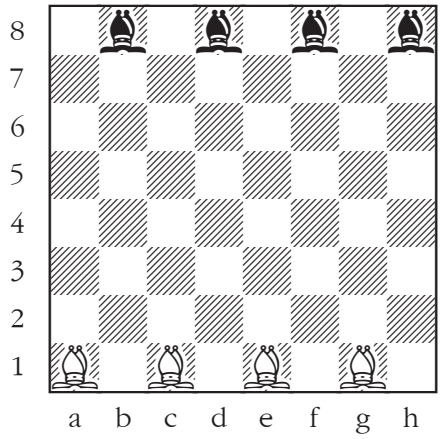
Do you know what the next higher number is with the same characteristic?



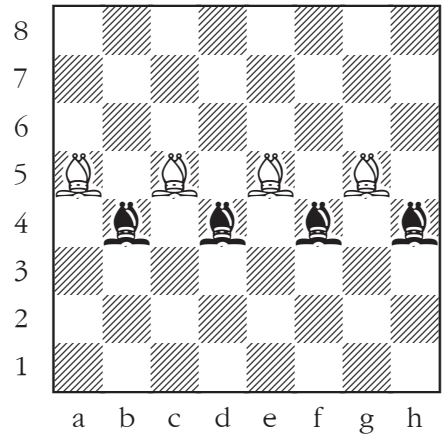
“Excuse me, waiter. This is not the problem I ordered.”

Passing Bishops 01

position A



position B

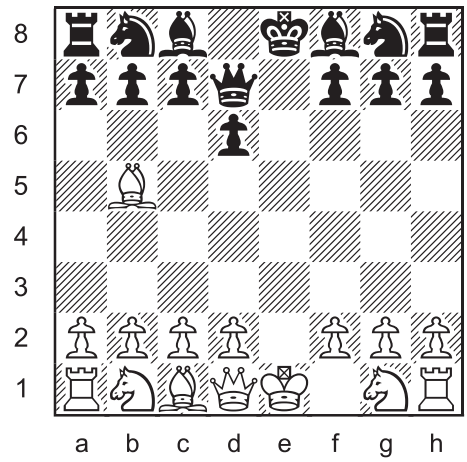


Get from A to B in eleven moves.
(six white, five black)

The two sides alternate moves in the usual way. Position B should be reached after White’s sixth turn. Solving the puzzle in twelve moves is easy. Eleven is tricky.

As we all know, a chessboard has 64 squares. But did you also know that there are 64 hexagrams in the *I Ching* and 64 positions in the *Kama Sutra*?

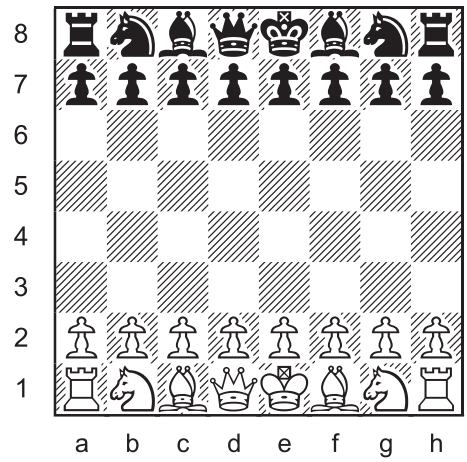
Proof Game 36 (4.0 moves)



This position was reached after Black's fourth turn. What were the moves?

The leading Russian chess magazine, published since 1924, has the simplest of names: *64*. Past editors include world champions Tigran Petrosian and Anatoly Karpov.

Synthetic Game 08



Compose a game that ends with the move **5...Ke8#.**

Almost hard to believe, but the black king can give mate on the fifth turn of a game.

Are you ready for some more bits of 64 trivia?

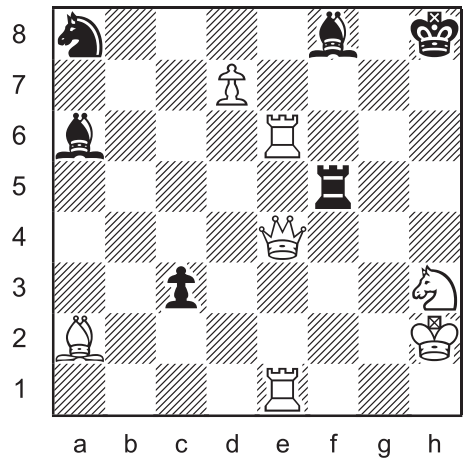
* 64 is the atomic number of the element gadolinium (Gd), a silvery-white metal used in the shielding of nuclear reactors.

* 64 is the telephone country code for New Zealand and Pitcairn Island. The latter is famous for its historical connection to *Mutiny on the Bounty*.

* 64 years is two billion seconds (2,019,600,000). But who's counting?

* The Roman numeral for sixty-four, LXIV, contains four different letters. What is the smallest number with four different letters?

Chess Maze 10



Pawn Maze

Which kind of promoted piece
gets through the maze fastest?
Rook, bishop, or knight?

Only the white pawn moves. When it reaches the last rank, it may become a rook, bishop, or knight. But not a queen. After the promotion, only the promoted piece moves. Find the shortest path to capture the black king, without taking any pieces or moving to a square attacked by a black piece. It is possible to go through the maze with a rook, bishop, or knight. Figure out which piece has the shortest path, and which the longest.

This puzzle is a *Toronto style* chess maze. Captures are not allowed. For more details, see column 69.

In 1950, sixty-four years ago, the world chess champion was Mikhail Botvinnik. Uruguay won the World Cup. And the world population was 2.5 billion. Now we're up to 7 billion. That's an average increase of two people every second.

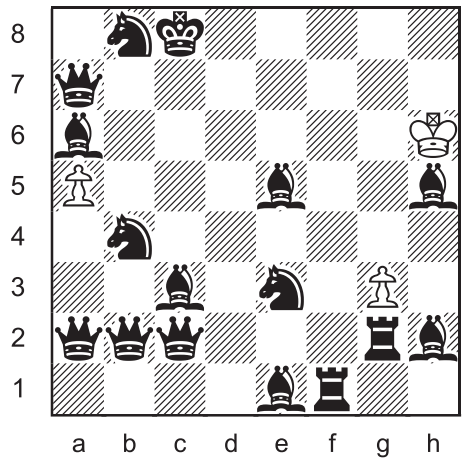
The *1950 Candidates Tournament* in Budapest ended with a tie between two Ukrainian grandmasters, David Bronstein (1924-2006) and Isaac Boleslavsky (1919-1977). They must have been well-matched because their twelve game playoff was also a tie! After two additional games, Bronstein finally prevailed, earning the right to challenge Botvinnik for the world championship.

Their match the following year ended with the score 12-12. There was no playoff. According to the rules, in case of a tie, the champion retained his title.

* Thirty years later, David Bronstein married the daughter of Isaac Boleslavsky.

* Can you name the other two players who tied a title match and never became world champion?

Multi-Wham 17



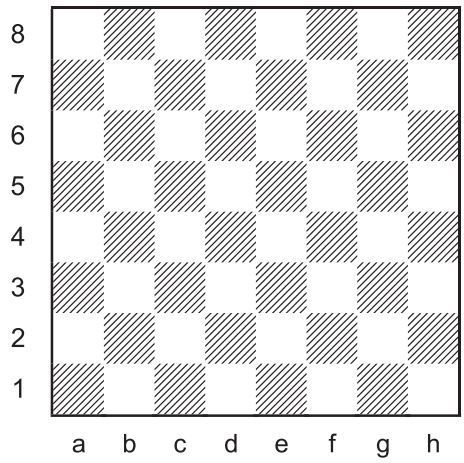
Series-mate in 32

White plays thirty-two moves
in a row to mate Black.

Only the last move may give check. Captures are allowed. White may not place their own king in check. Black does not get a turn.

The $64,000 Question

A chessboard consists of 64 squares. Each has width 1 and length 1. These squares can also be combined to form larger squares. For example, the four squares a1, a2, b1, b2 form a 2 x 2 square. Our bonus question concerns squares of any size (1x1, 2x2, 3x3, etc.).



How many squares are there on a chessboard?

'64 Chevy Impala
"lowrider style"

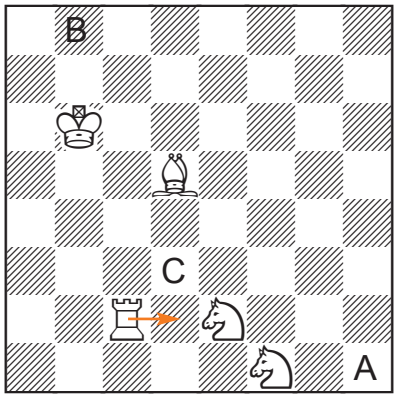
A great birthday gift. Ready to roll.

SOLUTIONS

All compositions by J. Coakley. Problems 1, 3, 6 are *ChessCafe.com* originals (2014). The others are from *Winning Chess Puzzles For Kids Volume 2* (2010).

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.

Triple Loyd 39



A. Kh1#
B. Kb8=
C. Kd3 (Rd2#)

For more triple loyds, see column 56 in the archives.

Squares and cubes.

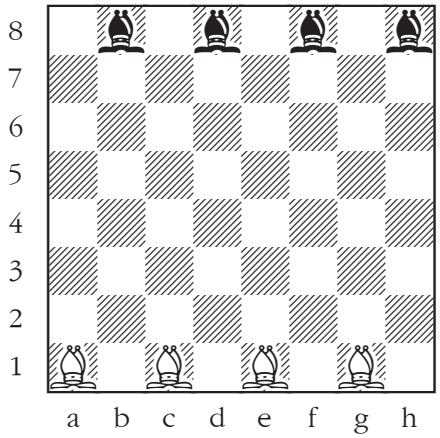
The next higher number above 64 that is both a perfect square and a perfect cube is 729 ($27^2 = 9^3$).

Any number which is a perfect power of 6 has this characteristic ($64 = 2^6$ and $729 = 3^6$). The next number in the sequence is 4096 which is 64 squared! ($64^2 = 16^3 = 4096$) The list continues with 15,625 and 46,656.

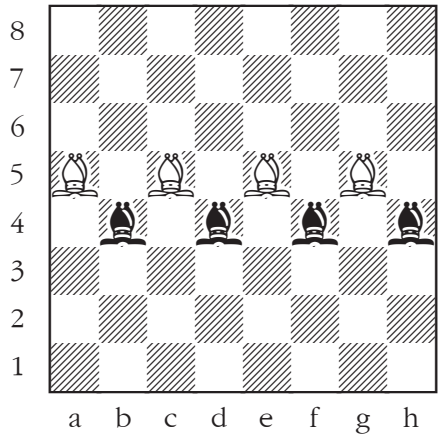
By the way, it could be argued that the smallest number which is a square and a cube is the number 1. ($1 = 1^2 = 1^3$) But that's not quite the same thing, is it?

Passing Bishops 01

position A



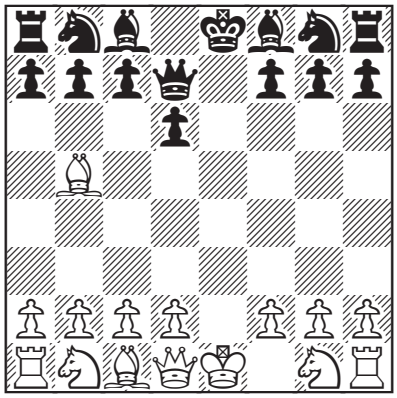
position B



1. Ba5 Bb4
2. Bc5 Bh4
3. Bg5 Bf4
4. Be5 Bg7
5. Bb8 Bd4
6. Be5

The bishops on the long diagonal are the time wasters.

Proof Game 36

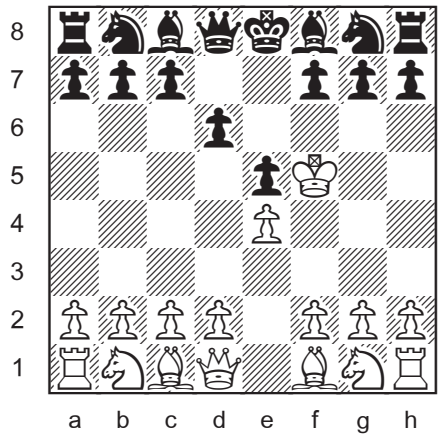


1.e4 d5 2.exd5 Qd6 3.Bb5+ Qd7 4.d6 exd6

Did the tempo move by the black queen slow you down?

For more proof games, see column 64.

Synthetic Game 08



1.e4 e6 2.Ke2 d6 3.Ke3 Kd7 4.Kf4 e5+ 5.Kf5 **Ke8#**

Obviously, the final move must be a discovered check.

The game is not unique. There are several mating patterns and various move orders. Here is a similar solution on the queenside.

1.d4 d5 2.Kd2 e6 3.Kc3 Ke7 4.Kb4 a6 5.Kc5 Ke8#

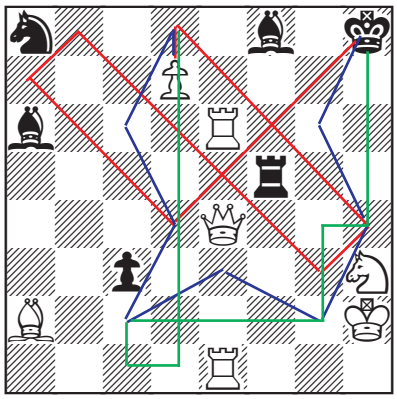
The white king can also greet his fate on g4 or h4.

1.f3 e5 2.Kf2 d5 3.Kg3 Kd7 4.Kg4 g6 5.g3 Ke8#
1.f4 e5 2.Kf2 Ke7 3.Kg3 h5 4.Kh4 d6 5.g3 Ke8#

More information on synthetic games can be found in column 14.

Roman numerals.
The smallest number with four different letters is forty-four, XLIV.

Chess Maze 10



A bishop is fastest. 7 moves.
d8=B-h4-g3-b8-a7-d4xh8

A knight is slowest. 9 moves.
d8=N-c6-d4-c2-e3-g2-h4-g6xh8

A rook is the middle man. 8 moves.
d8=R-d1-c1-c2-g2-g4-h4xh8

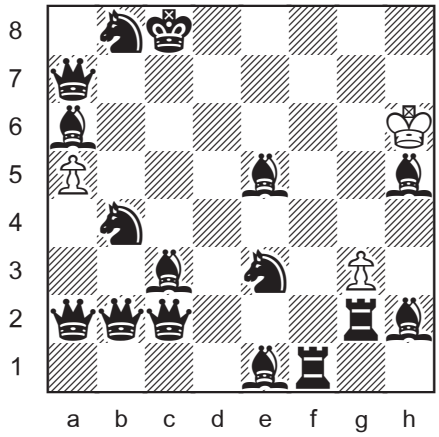
Promoting to a queen would be way too easy. 3 moves. d8=Q-h4xh8

Title ties.
The three players who tied a title match and never became world champion are Carl Schlechter (1910), David Bronstein (1951), and Peter Leko (2004).

David Bronstein

Multi-wham 17

series-mate in 32



A king and two pawns take on a fully loaded black army.

1.Kg5

It's almost necessary to see the entire solution before making the initial move. The first thing to realize is that the g-pawn will not be able to promote to a queen or rook. That would be check unless the white king could obstruct the 8th rank, which is prevented by the black rooks at f1 and g2. So the g-pawn must promote to a minor piece. The key to determining which type of minor piece is the black queen on a7.

The black king is fairly open. Mating him with one minor piece and the king will be impossible, which means that White must also promote the a-pawn. That will require capturing the queen on a7. The white king cannot capture her because a king can never move next to a queen. A white knight cannot capture on a7 either because it would be check. Therefore, the g-pawn must become a dark-square B! That can only happen on h8, which makes the capture gxh5 necessary.

The white king is blocking the g-pawn's path to h8. He has to get out of the way before the pawn advances and prevents his escape. The only place to go is h3.

2.Kh4

3.Kh3

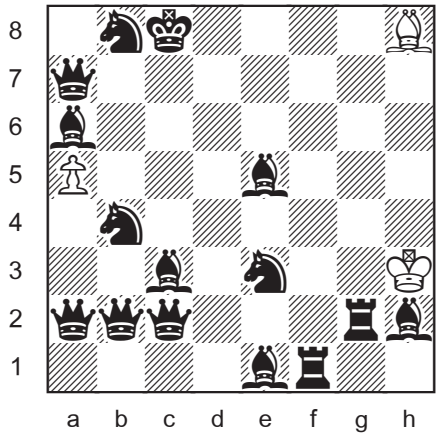
4.g4

5.gxh5

6.h6

7.h7

8.h8=B To free the white a-pawn, the light-square bishop on a6 must also be captured. That will have to be done by the white king. The next sequence of moves is the most efficient way for the white bishop to liberate the king and allow him to reach b6.



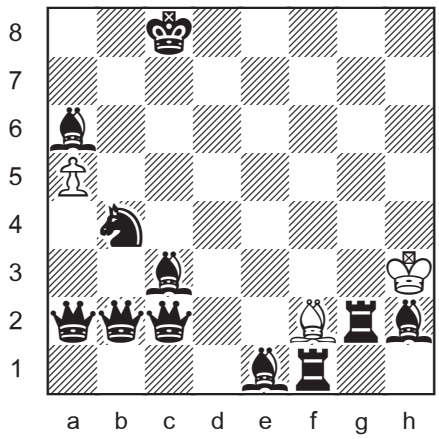
9.Bxe5

10.Bxb8

11.Bxa7

12.Bxe3

13.Bf2 On f2, the bishop obstructs the 2nd rank and the f-file, allowing the king to capture on g2 and cross over f3.



14.Kxg2

15.Kf3

16.Ke3

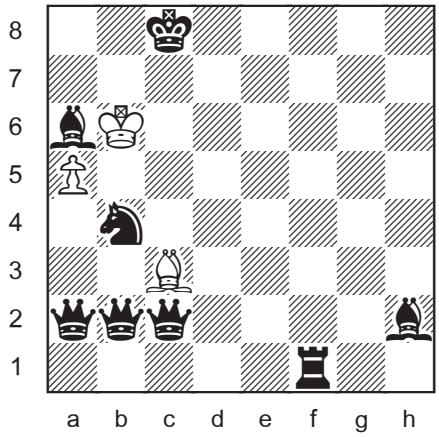
17.Bxe1

18.Bxc3 Securing the d4 square.

19.Kd4

20.Kc5

21.Kb6



22.Bxb4 Removing the defender of the bishop on a6.

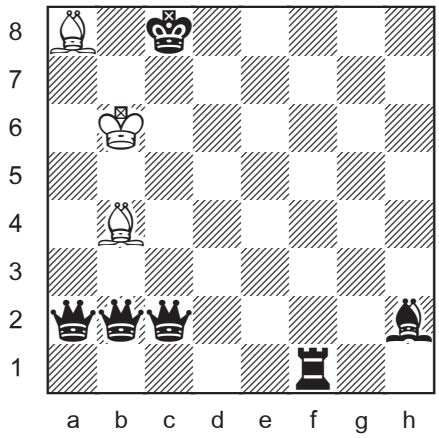
23.Kxa6

24.Kb6 The a-pawn is ready to roll.

25.a6

26.a7

27.a8=B Once again, promoting to queen or rook is impossible. Mating with a knight is possible, but it takes five more moves than with a new bishop. For example, 27.a8=N, 28.Nc7, 29.Ne6, 30.Nd4, 31.Nxc2, 32.Nd4, 33.Nf5, 34.Kc6, 35.Ba5, 36.Bc7, 37.Ne7#.



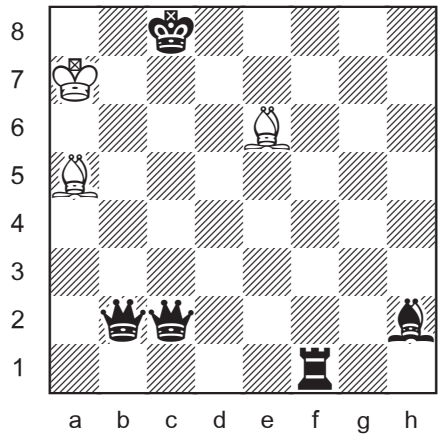
28.Bd5 Now a quick rearrangement of the white pieces sets up a classy crisscross mate.

29.Bxa2

30.Ka7

31.Ba5

32.Be6# See next page.



Let's hear it for the two Bs.

For anyone interested in economic analysis, the only overqualified piece in this problem is the bishop on h5, which could be replaced by a pawn. The other black pieces cannot be demoted. If the white king started on g7 instead of h6, then the piece on h5 would have to be a bishop for a series-mate in 33. But the king would be in check on g7 and the first move would be forced.

More series-mates are available in the archives, beginning with column 2.

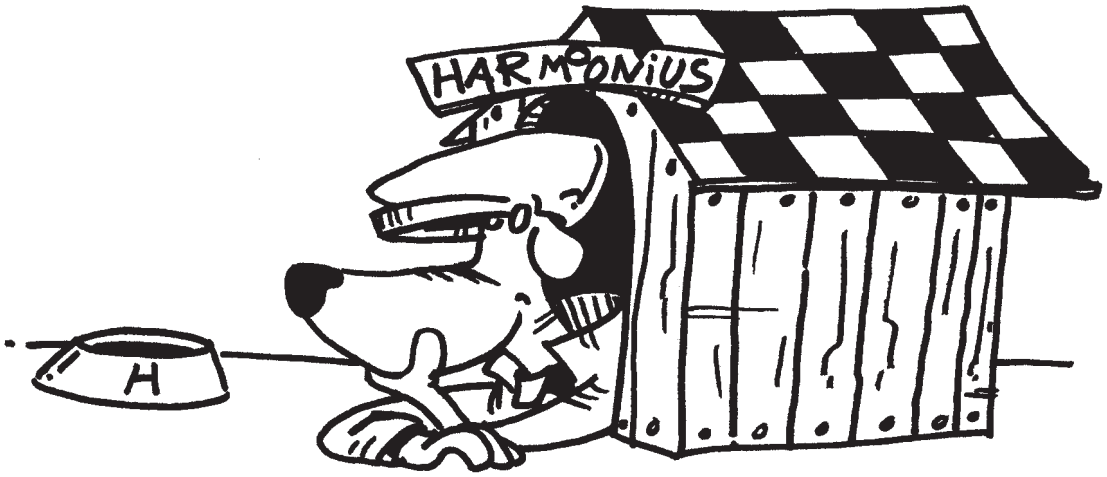
The $64,000 Question

There are **204** squares on a chessboard.

64	1x1
49	2x2
36	3x3
25	4x4
16	5x5
9	6x6
4	7x7
1	8x8
204	

The entire chessboard is one big square. Did anyone forget 8x8?

The number of n-sided squares = $(9-n)^2$



Doing the garden. Digging the weeds.
Who could ask for more?