



9 Two Rooks

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Challenge

The three very intelligent elves, Reiko, Spaxo, and Yello, are looking at Santa filled with anticipation. Santa says, “You can find a blue and a yellow rook, which do not threaten each other by standard chess rules, on my chess board. Those rooks are positioned on **two** of the following twenty squares:

a1, a3, a4, a8, b1, b5, b8, c3, d2, d4, d7, e2, f1, f3, f5, f6, f7, g7, h4, h7.”

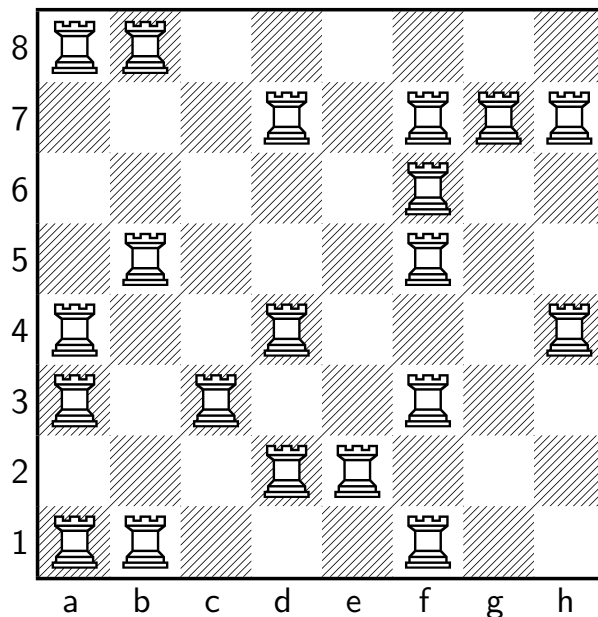


Figure 1: The twenty possible squares.

Santa continues, “Reiko knows the rank (1, 2, 3, 4, 5, 6, 7, or 8) of the blue rook. Spaxo knows the file (a, b, c, d, e, f, g, or h) of the blue rook. Yello knows the square occupied by the yellow rook. However, that is everything you know about the positions of the rooks.”

Thereupon, the elves make the following statements. After each statement, the elves contemplate for one minute before moving on.

- 1) Spaxo says, “I cannot tell the square of the blue rook.”
- 2) Then, Spaxo says, “I know that Reiko cannot tell the square of the blue rook either.”
- 3) After that, Reiko says, “I still do not know where to find the blue rook.”
- 4) Now, Spaxo says, “I still do not know where to find the blue rook.”
- 5) Then, Spaxo says, “I know that Yello cannot tell the square of the blue rook.”
- 6) Afterwards, Yello says, “Before Spaxo’s last statement, I did not know the file of the blue rook.”
- 7) Then, Reiko says, “Before Spaxo’s last statement, I did not know the file of the blue rook.”
- 8) Finally, Yello says, “Eureka! Now, I know the square of the blue rook!”

Now, we want to know: Which square is occupied by the blue rook?



Artwork: Friederike Hofmann

Possible answers:

1. The blue rook stands either on a1 or d7.
2. The blue rook stands either on a3 or e2.
3. The blue rook stands either on a4 or f1.
4. The blue rook stands either on a8 or f3.
5. The blue rook stands either on b1 or f5.
6. The blue rook stands either on b5 or f6.
7. The blue rook stands either on b8 or f7.
8. The blue rook stands either on c3 or g7.
9. The blue rook stands either on d2 or h4.
10. The blue rook stands either on d4 or h7.