

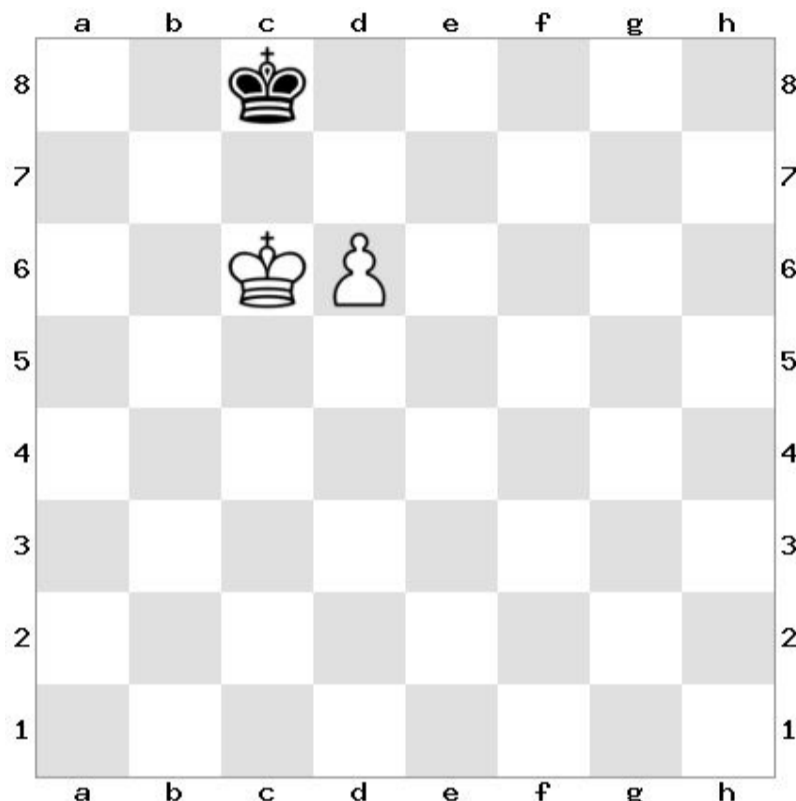
Basic Endgames 2

King and pawn versus king

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V 2.00



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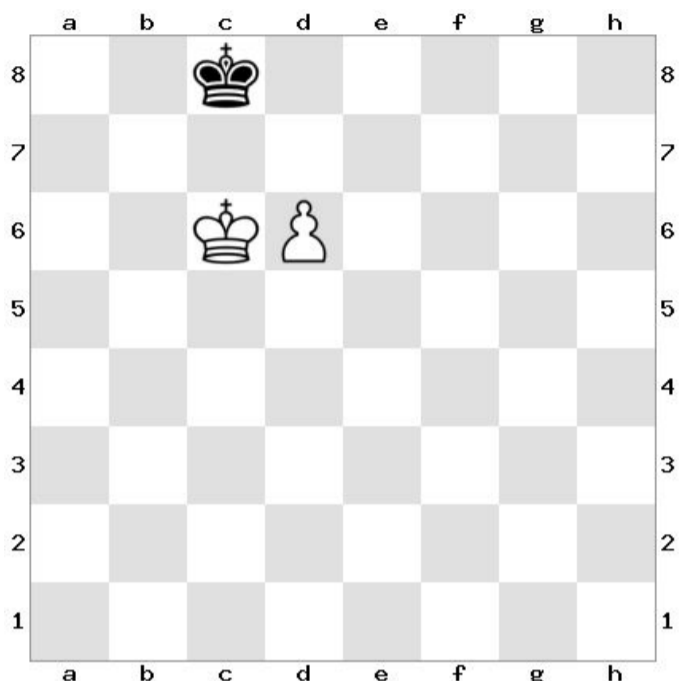
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King and pawn versus king

Introduction



In the endgame of king and pawn versus king the side that has the pawn wants to win the game. We will call them the *attacking side*.

The plan for the attacking side is to promote the pawn to a queen and then checkmate the other king using their king and new queen.

The side without the pawn wants to draw the game. We will call them the *defending side*. It is impossible for the defending side to win in this endgame. Their plan is to capture or block the pawn and stop it from becoming a queen.

Is the pawn on its own or can it get help from its king?

When the pawn is closer to the defending king than to its own king what determines whether the game will be a win or a draw is:

- Can the pawn safely promote without help from its king, or,
- Can the other king capture the pawn before or when it promotes to a queen?

We will look at these types of endings in the section *Pawn Alone*.

When the attacking king is close enough to help its pawn become a queen the endgame becomes a struggle for control of the squares on the path that the pawn needs to move through to become a queen. This struggle involves *Opposition* and *Critical Squares*. These concepts are basic to understanding this and many other, more complex, endgames.

General

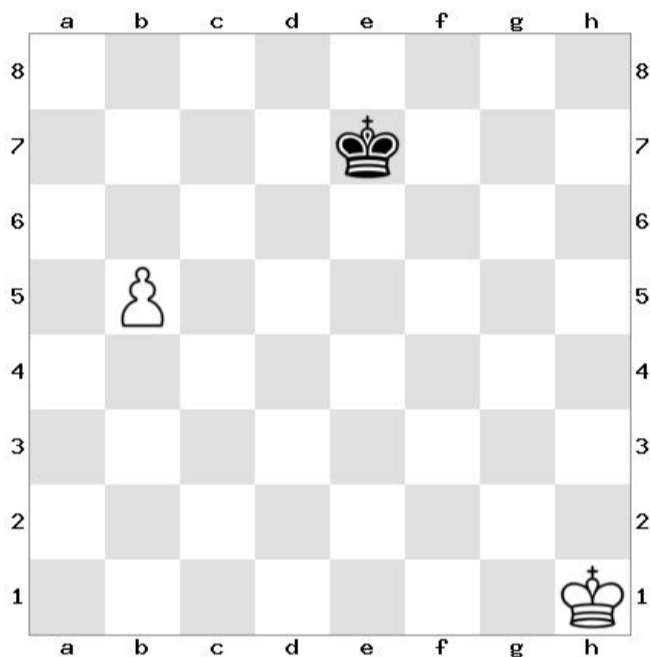
This material can be challenging if it is new to you. Practice and master each section before moving to the next section.

In all of our diagrams white is the attacking side (has the pawn) and black is the defending side (without the pawn), but everything works the same in reverse if black is the one with the pawn.

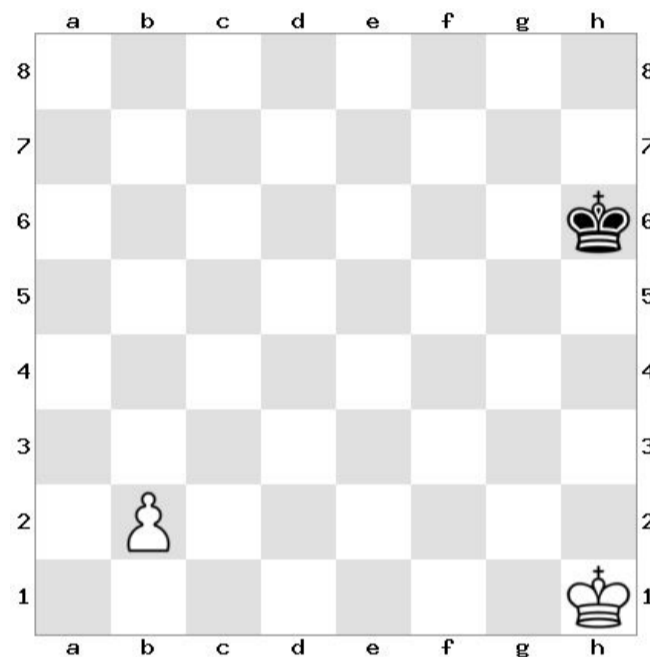
Pawn alone

When the pawn has no help from its king (because the king is too far away) it becomes a race to the queening square between the pawn and the defending king. We can count the number of moves that the pawn needs to queen and count the number of moves the defending king needs to reach the queening square to see which gets there first.

It is white to move in these positions.



*A. The pawn needs three moves to promote. The black king can reach the queening square in three moves.
1. b6 Kd7 2. b7 Kc7 3. b8=Q+ Kxb8.
Draw.*



B. The pawn needs five moves to promote. The black king can reach the queening square in six moves. 1. b4 Kg7 2. b5 Kf7 3. b6 Ke7 4. b7 Kd7 5. b8=Q wins.

With the pawn to move ...

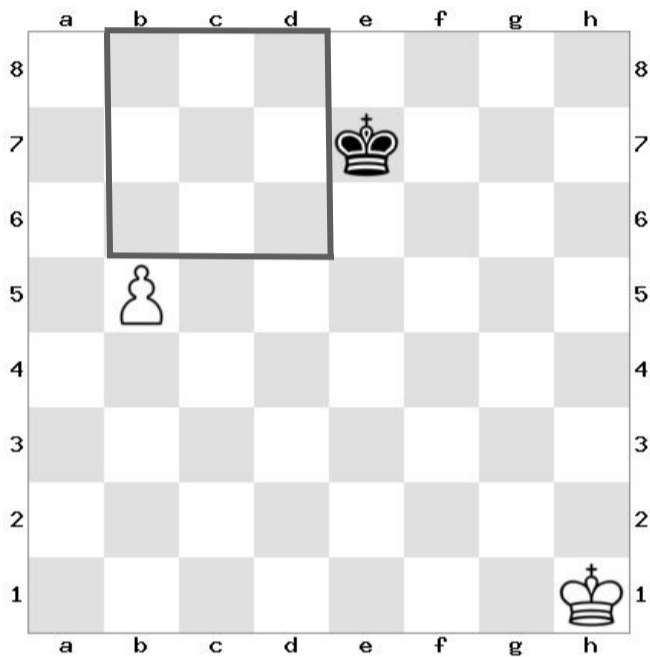
... if the pawn needs less moves than the defending king to reach the queening square then it will promote to a queen successfully. (See position B above.) The attacking side can now win by checkmate with its king and new queen.

... if the pawn needs the same number of moves as the defending king to reach the queening square then the defending king will be able to capture it just as it queens. (See position A above.) The game will be a draw.

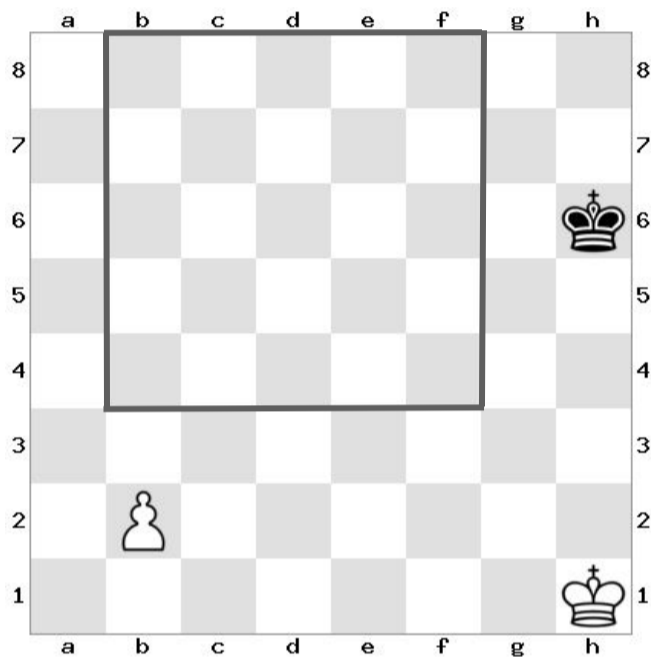
... if the pawn needs more moves than the defending king to reach the queening square then the defending king will be able to capture it before it queens. The game will be a draw.

Pawn alone - square of the pawn

You can also see this by imagining the *Square of the Pawn* based on where the pawn will be when it is the defending king's turn to move. One side of the square goes from the pawn position to the queening square. When the pawn is on the second rank, make the "Square of the Pawn" one square smaller because the pawn can move twice on its first move. It is white to move in these positions.



A. Same as position A on the previous page with the 3x3 Square of the Pawn drawn. The black king can step into the Square of the Pawn so it can catch the pawn.



B. Same as position B on the previous page with the 5x5 Square of the Pawn drawn. Here, the black king can't step into the Square of the Pawn so it can't catch the pawn.

When the pawn has no help from its king (because the king is too far away),
If the defending king ...

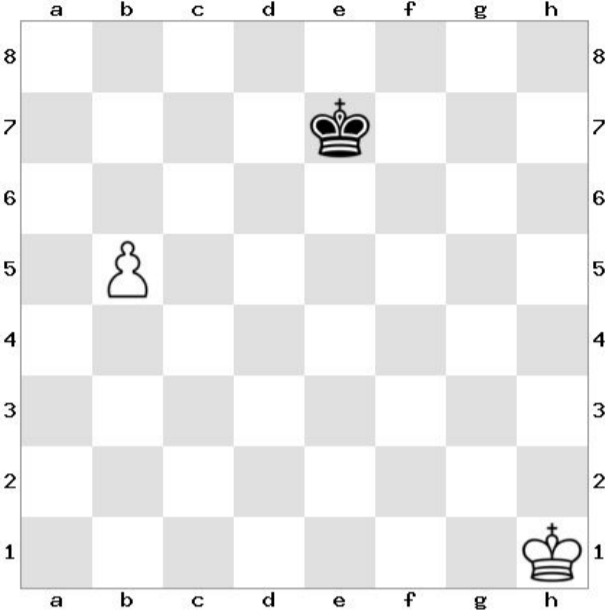
... can't step into the *Square of the Pawn* then the pawn will promote to a queen successfully. (See position B above.) The attacking side can now win by checkmate with the king and new queen.

... can step into the *Square of the Pawn* then it will be able to capture the pawn just as it queens. (See position A above.) The game will be a draw.

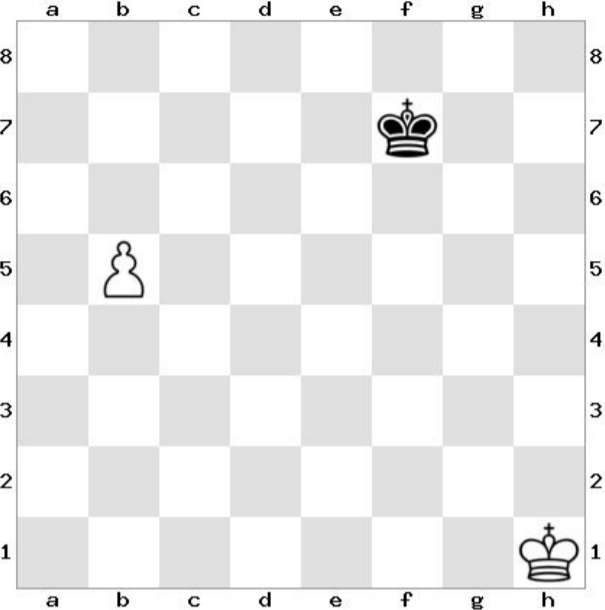
... is already in the *Square of the Pawn* then the king will be able to capture the pawn before it queens. The game will be a draw.

Exercises - Pawn alone

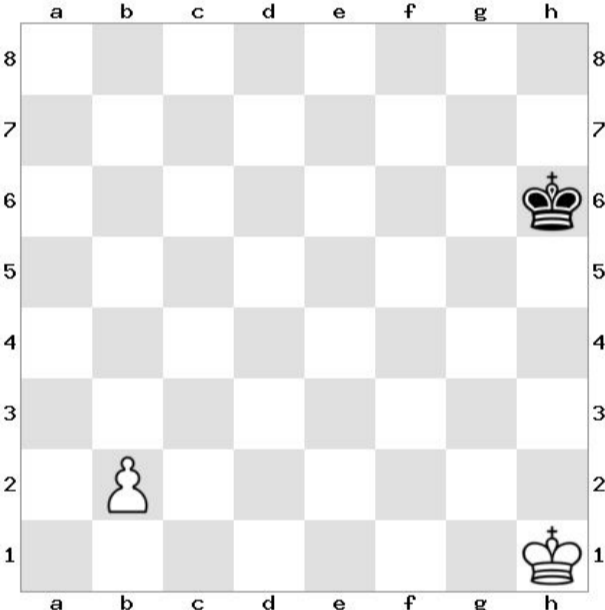
White to move. Can the pawn promote without additional help from its king?



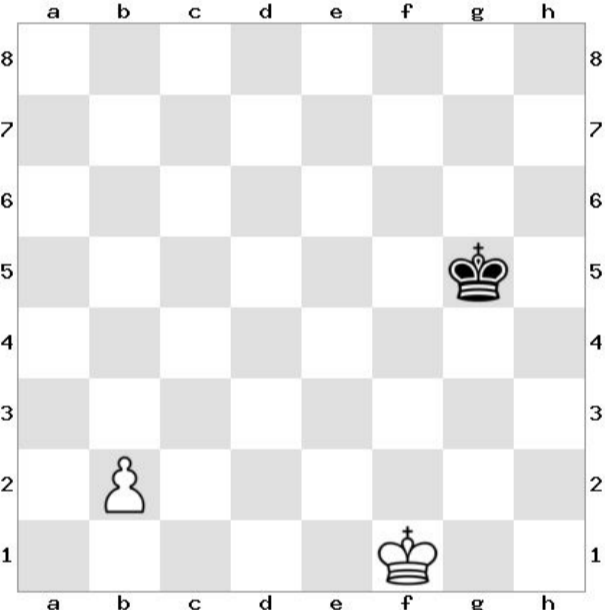
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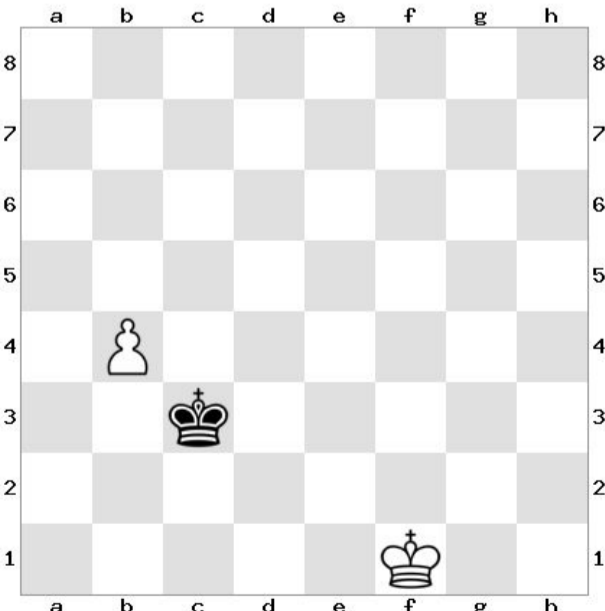
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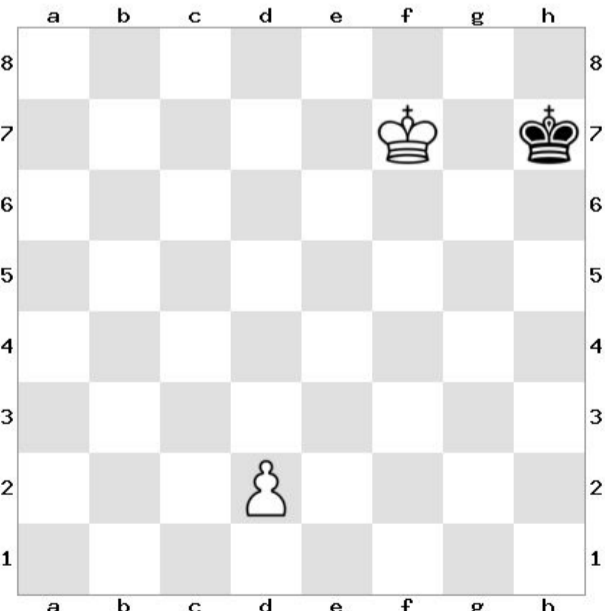
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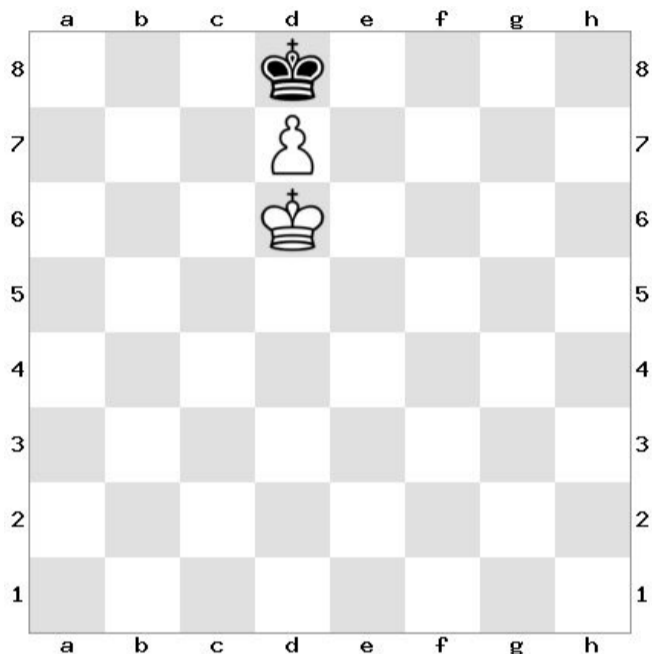
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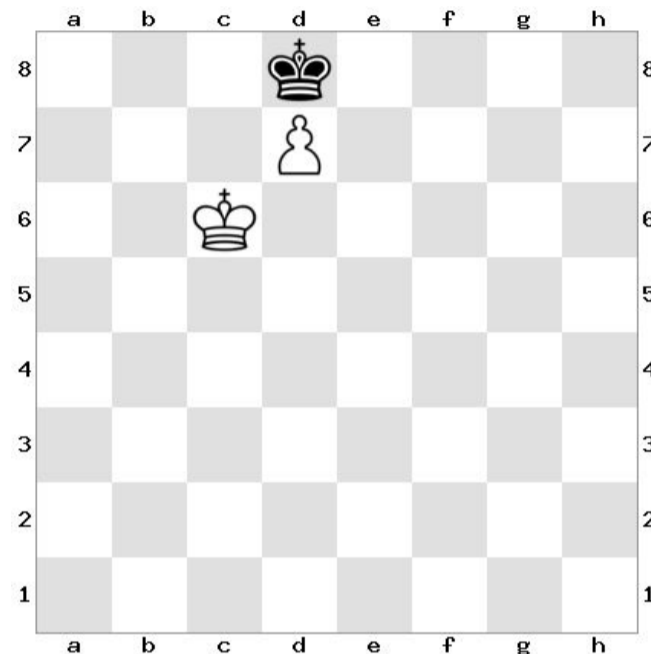
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Pawn on the 7th rank

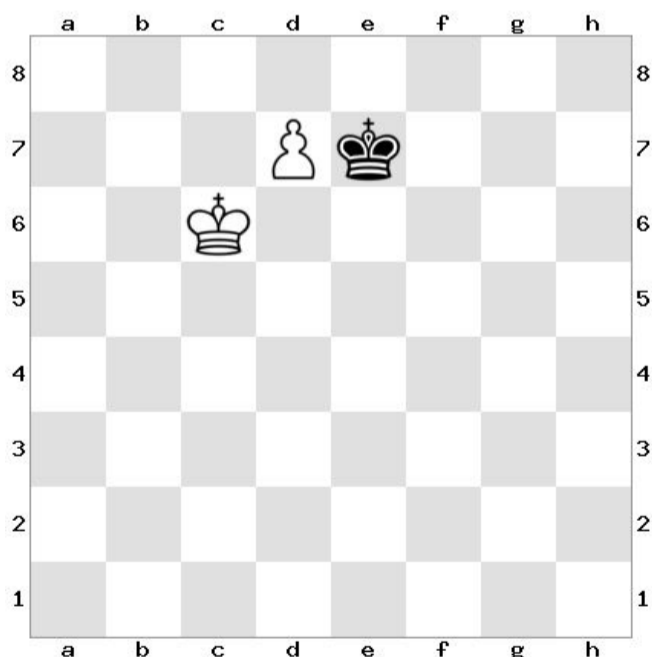
When the pawn is on the 7th rank with both kings nearby it is an important moment. The smallest difference in the positions of the kings and whose move it is determines if the game will be a draw or if the attacking side will win.



Black to move. This is a stalemate. Draw.

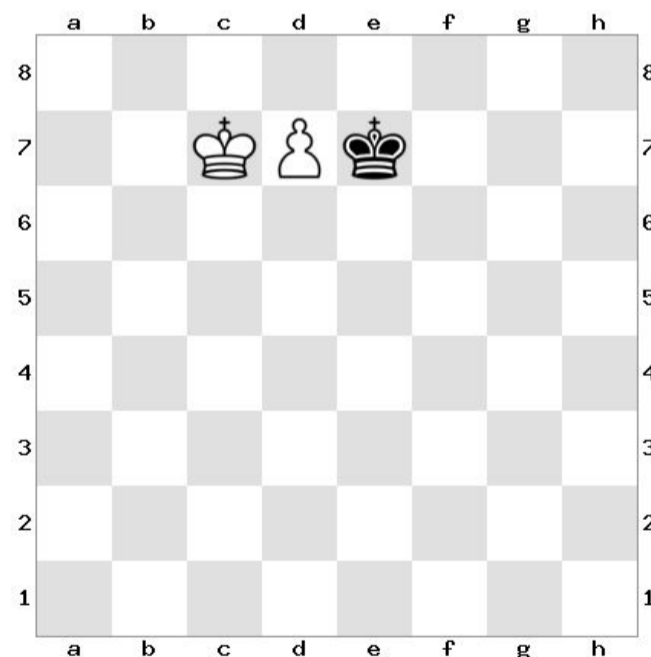


White to move: White either plays 1. Kd6 (stalemate) to protect the pawn or walks away and Black takes it. Draw.



White to move: after 1. Kc7 Black can't stop the pawn. White wins.

Black to move: 1. ... Kd8 draws as we just saw.

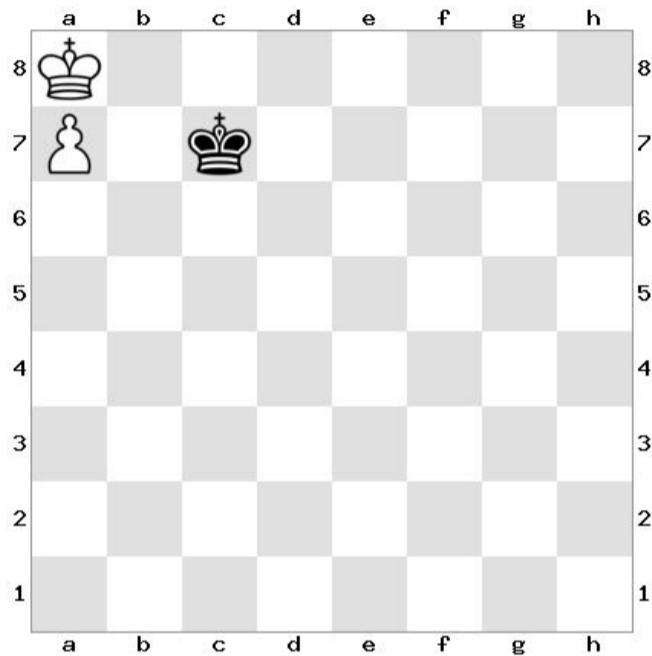


Black to move: 1. ... Ke7 and White wins (see next position).

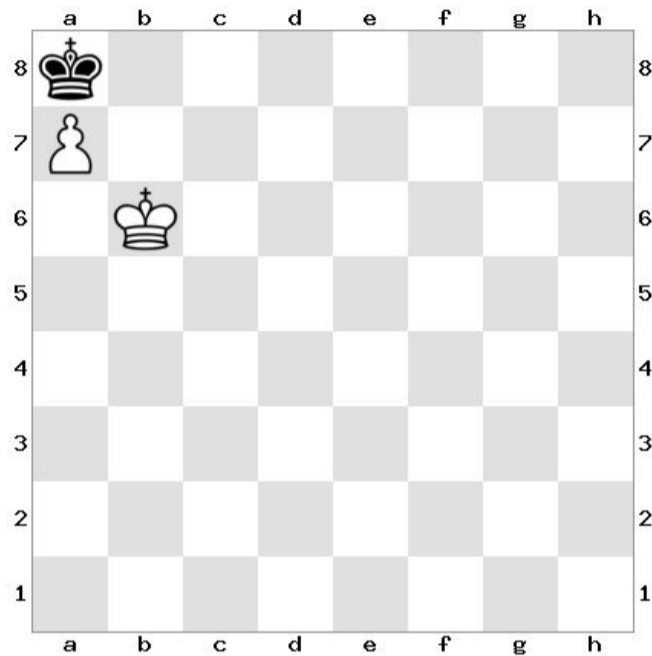
White wins no matter whose move it is. Black can't stop the pawn from becoming a queen.

Rook pawn

Rook pawns (pawns on the a-file or h-file) are a very special case. It is easier for the defending side to draw using stalemate as a defense. It is also the only time that the attacking side in these endgames can be stalemated.

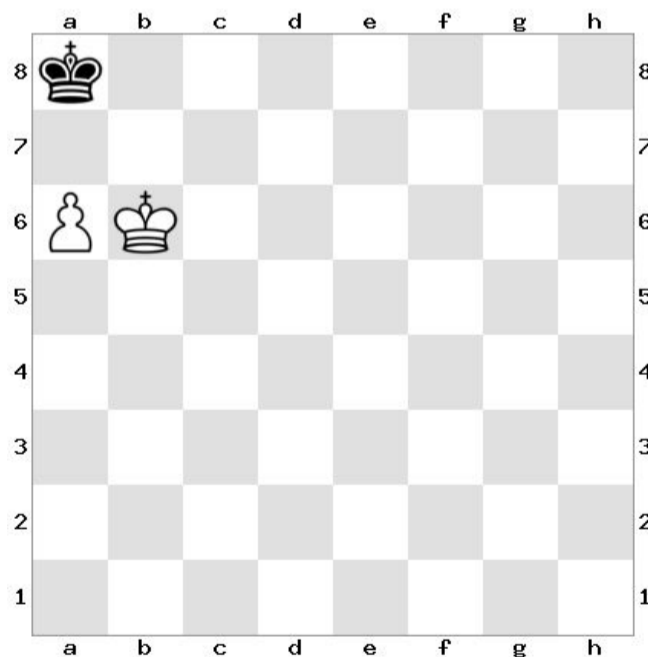


White to move is stalemate. Black to move plays 1. ... Kc8 and it is still stalemate. White is trapped by its own pawn and the black king. Draw.

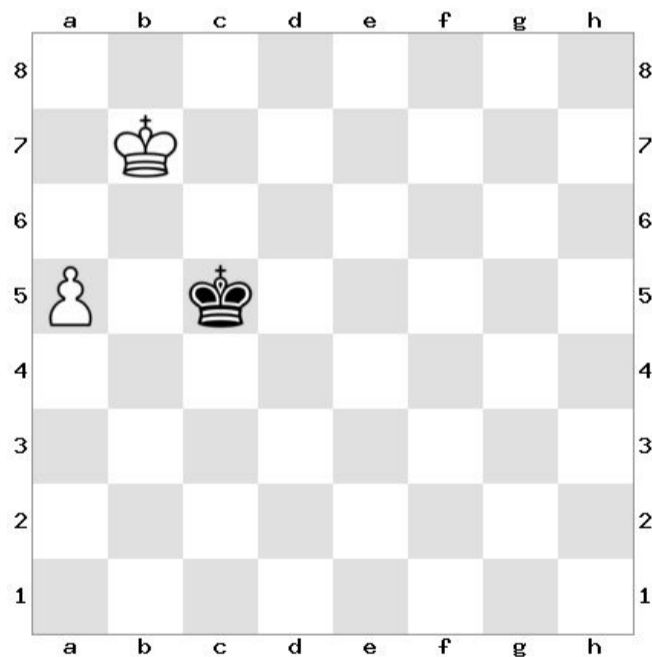


White to move: White either plays 1. Ka6 (stalemate) to protect the pawn or walks away and Black takes it. Draw.

Black to move is stalemate. Draw.



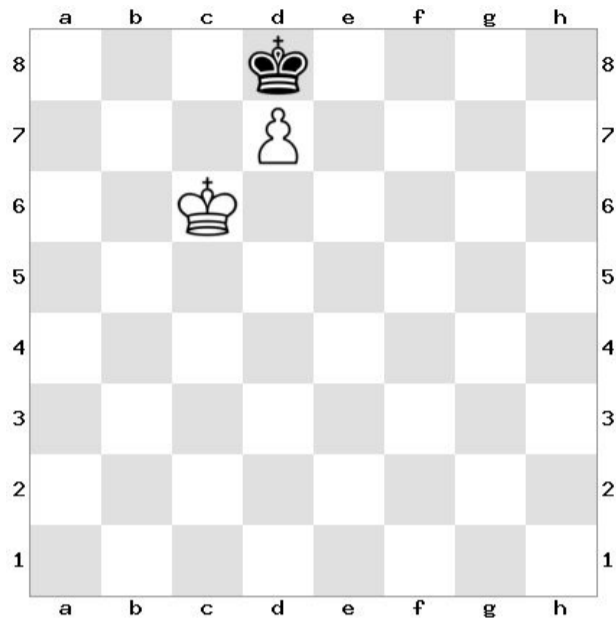
Against a rook pawn, if the defending side can step in front of the pawn at any point it can never be dislodged. Draw.



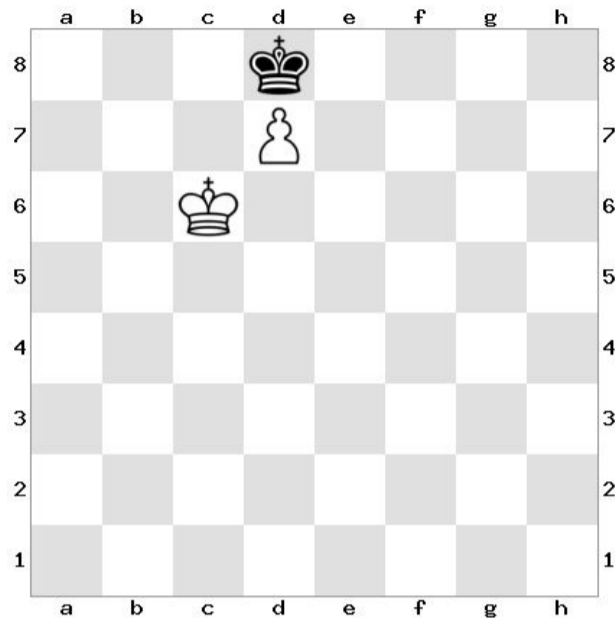
An ideal position for the attacking side. Their king protects a6, a7 and a8, does not prevent the pawn's advance and blocks the defending king from getting in front of the pawn. White wins.

Exercises - Pawn on 7th rank and rook pawn

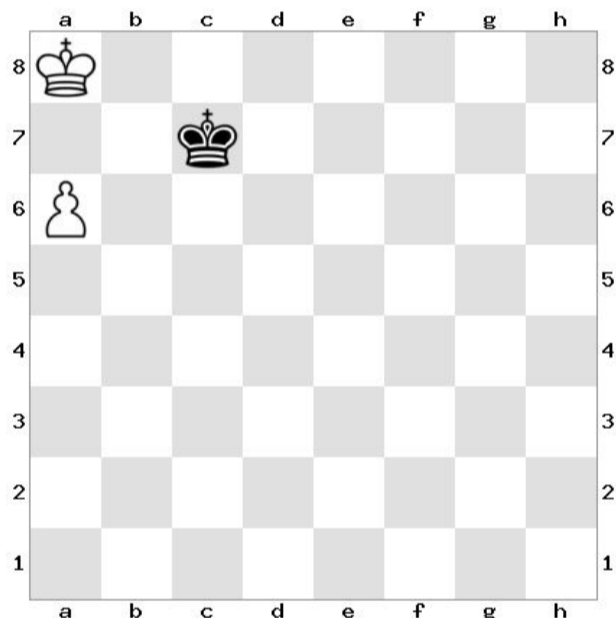
White to move except as noted. Does white win or does black draw? How?



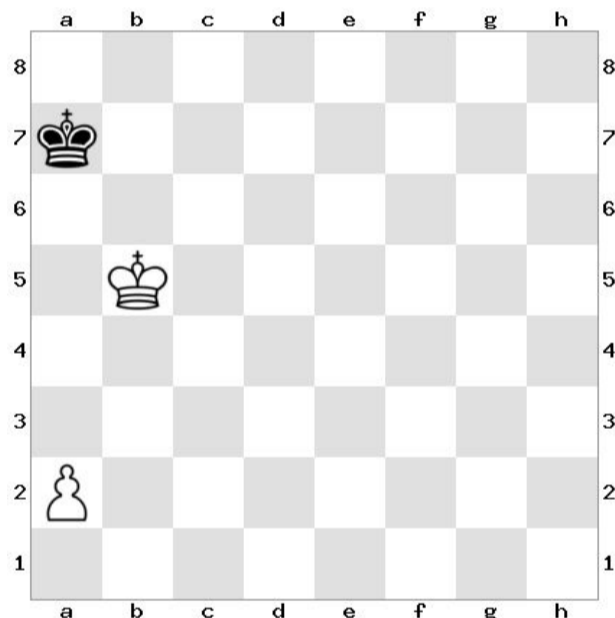
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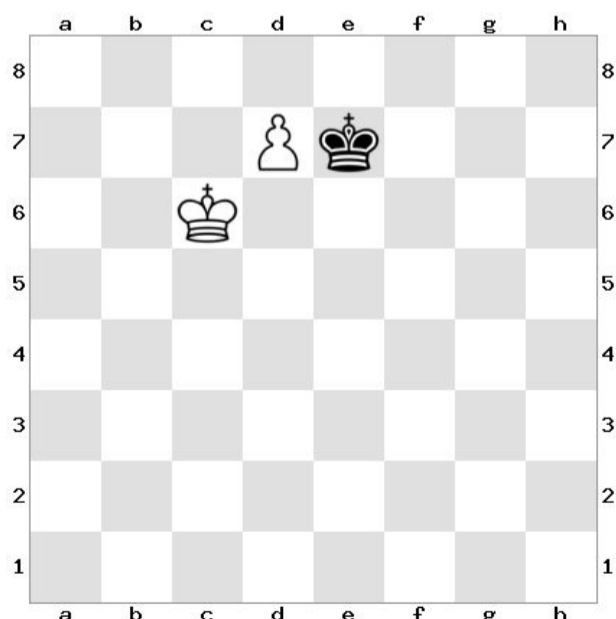
8 Black to move



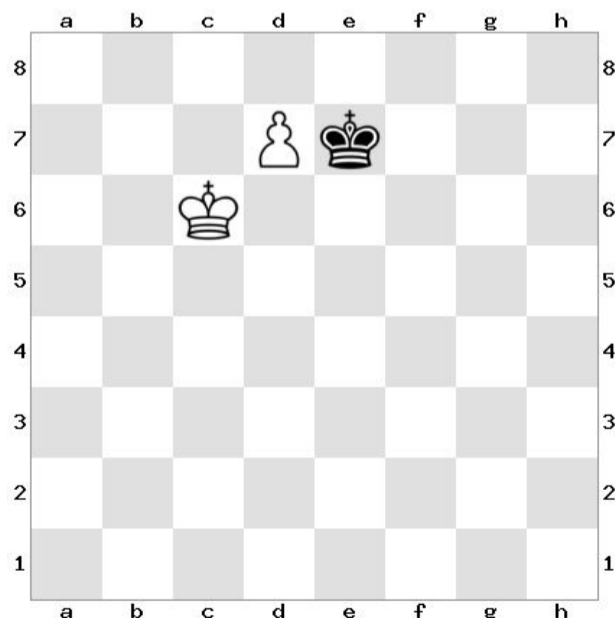
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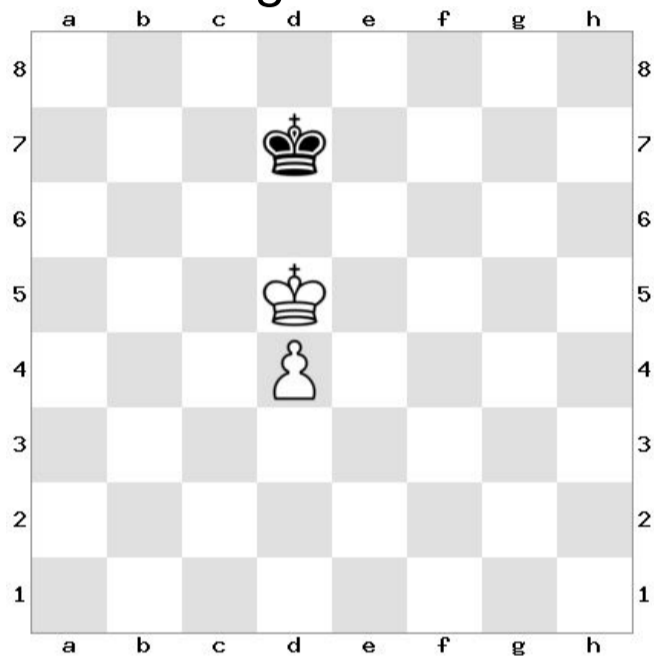
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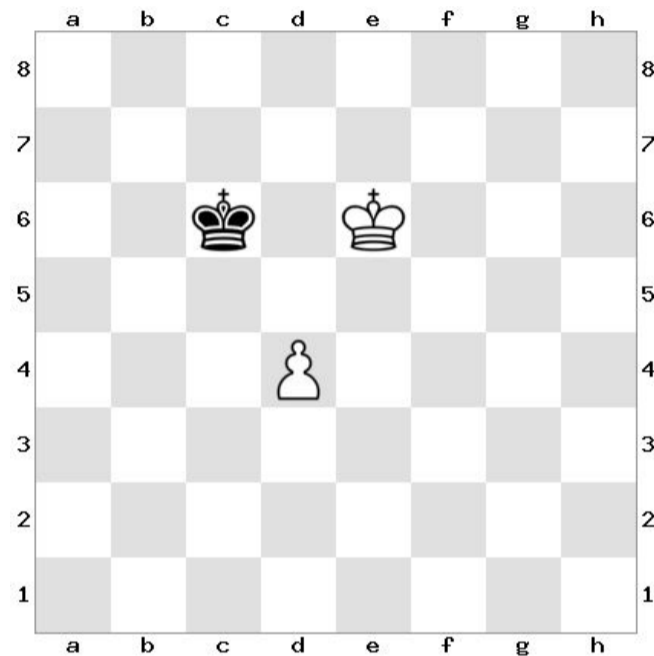
12 Black to move

Opposition

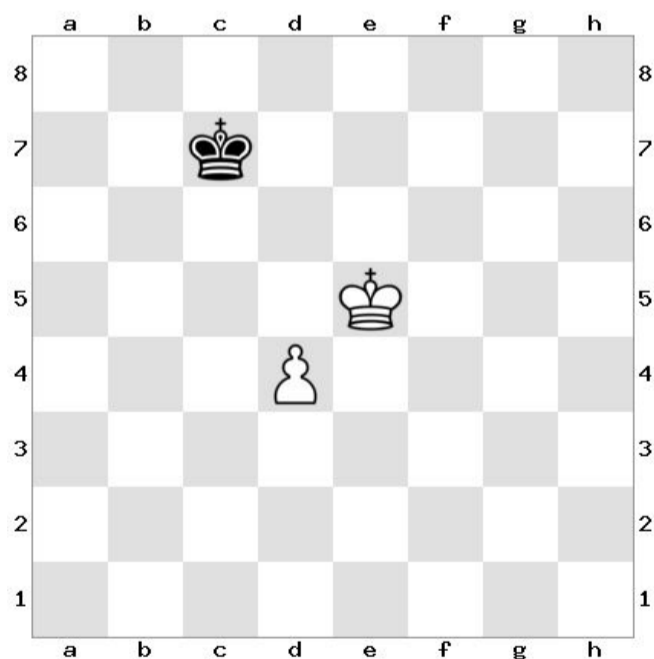
The positions on this page show kings in *opposition*. When kings are in *direct* opposition they are on the same file, rank or diagonal with one square between them. In *distant* opposition the kings have 3 or 5 squares between them. If we just say *opposition* we usually mean direct vertical opposition. The concept of *opposition* can help us understand some of these endings.



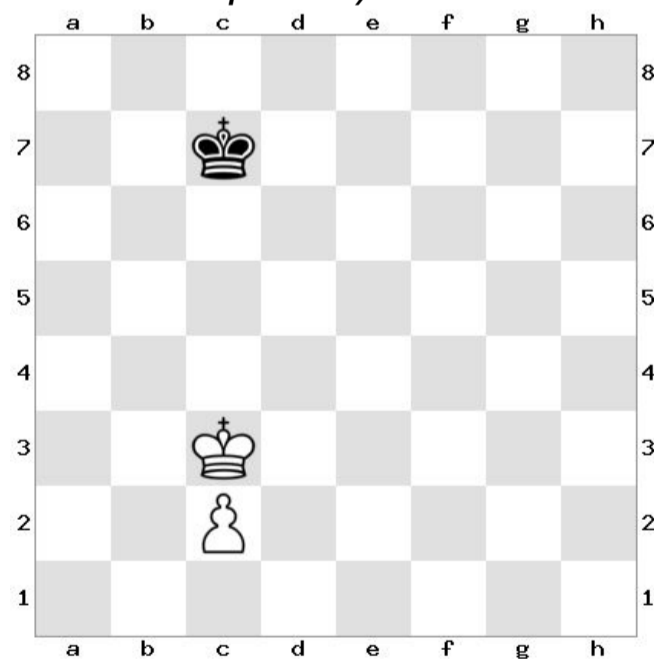
Direct vertical opposition. The side to move must back up or move aside. White: Kc5, Kc4, Ke5, or Ke4. Black: Kc7, Ke7, Kc8, Kd8 or Ke8.



Direct horizontal opposition. The side to move must back up or move aside. White: Ke5, Ke7, Kf5, Kf6 or Kf7. Black: Kb5, Kb6, Kb7 or Kc7. (White can also move the pawn.)



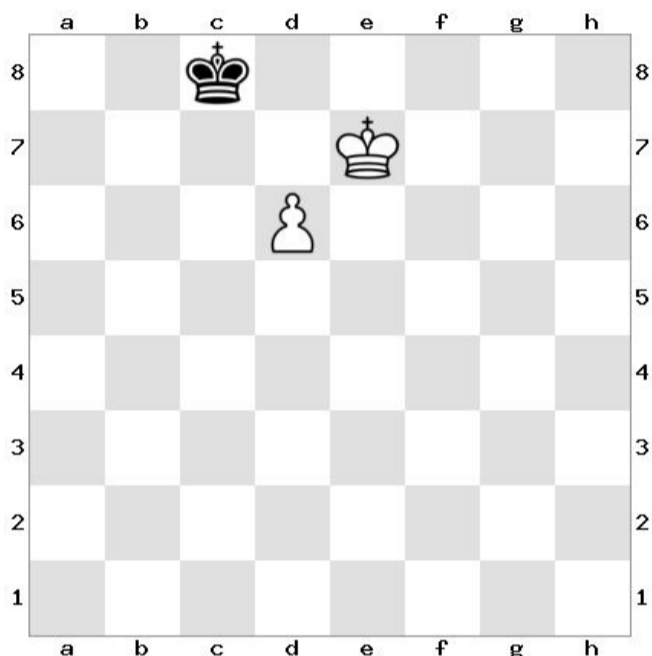
Direct diagonal opposition. This will turn into direct horizontal opposition or direct vertical opposition after each king moves once if they maintain contact with the square d6.



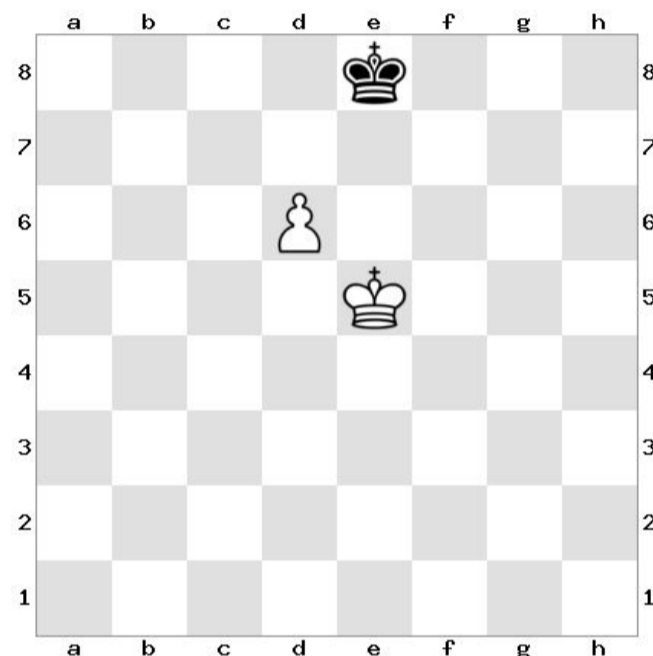
Distant opposition. After each king moves once towards c5 this turns into direct vertical opposition.

Pawn on the 6th rank - wins

If the attacking side can secure the path to the queening square for their pawn then they can win. They try to force the other king away by using the opposition.

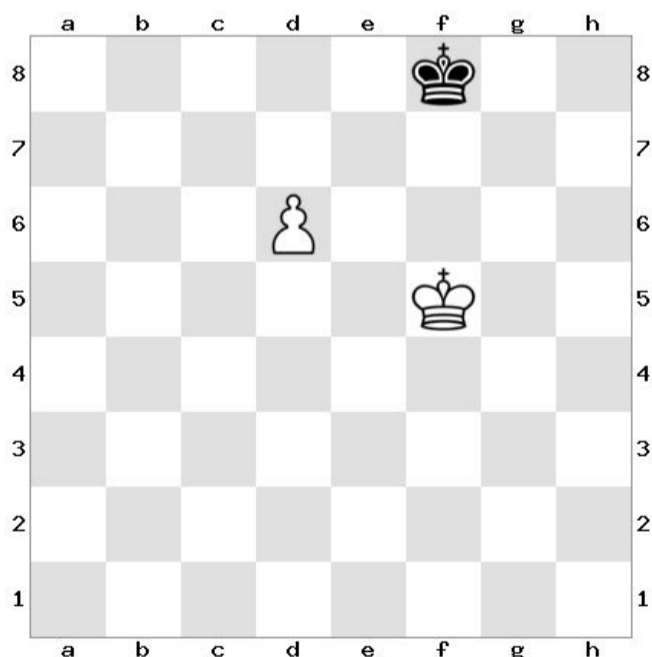


White controls the path to the queening square and can queen no matter which side moves first. White wins.

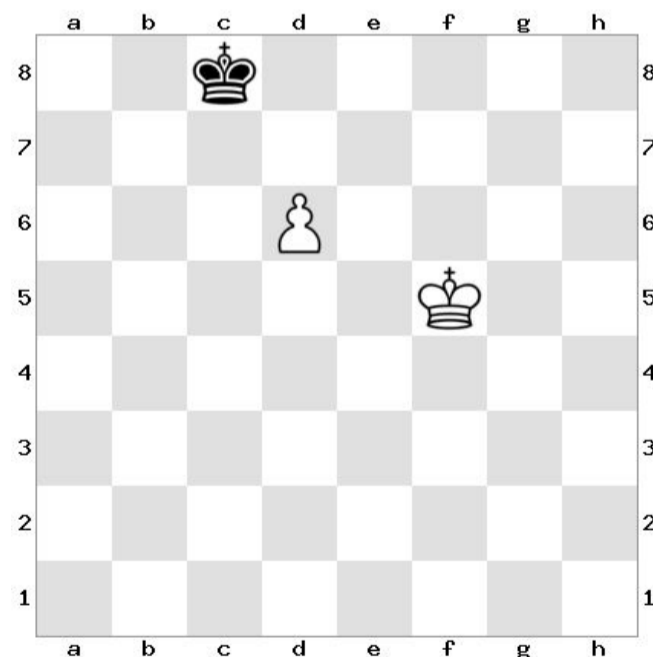


White to move wins by taking the opposition with 1. Ke6 then ... Kd8 2. c7.

Black to move can draw with 1. ... Kd7.



White to move wins by taking the opposition with 1. Kf6 Ke8 2. Ke6 Kd8 3. c7.

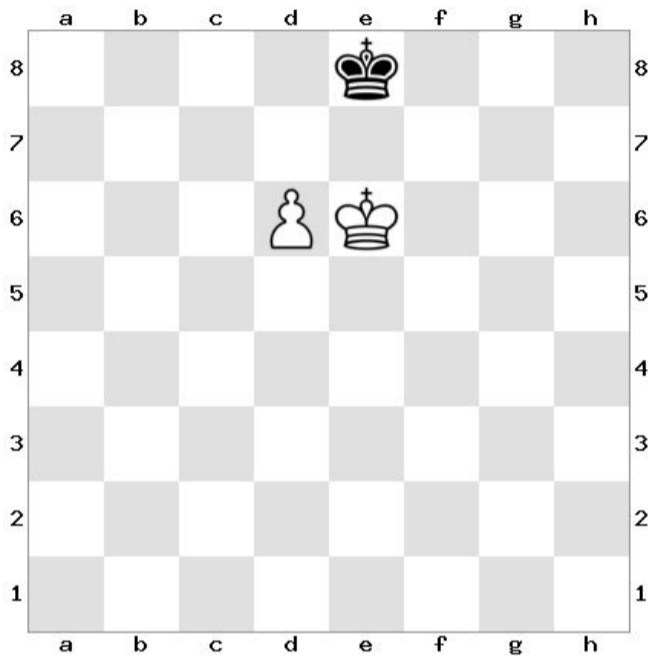


White to move wins by taking the diagonal opposition with 1 Ke6 Kd8 2. c7.

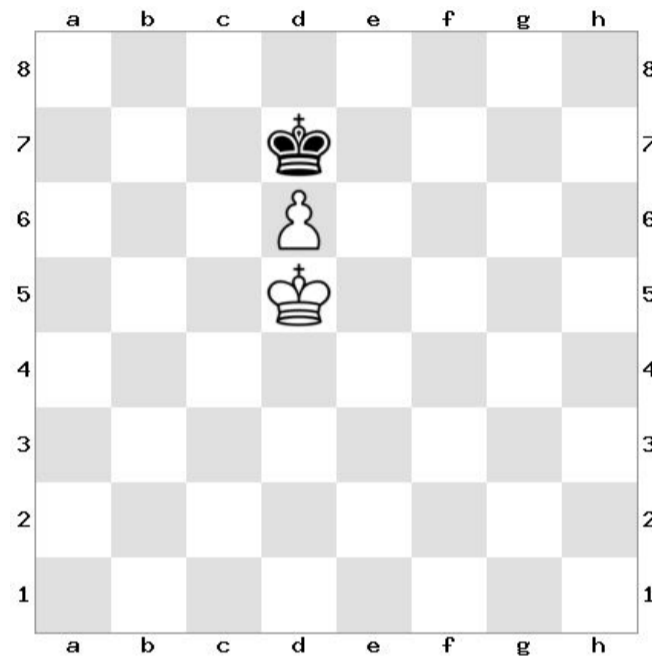
Black to move can draw with 1. ... Kd7.

Pawn on the 6th rank - draws

The defending side can draw by blocking the pawn and preventing the attacking side's king from entering. They use the opposition to hold their blockade.

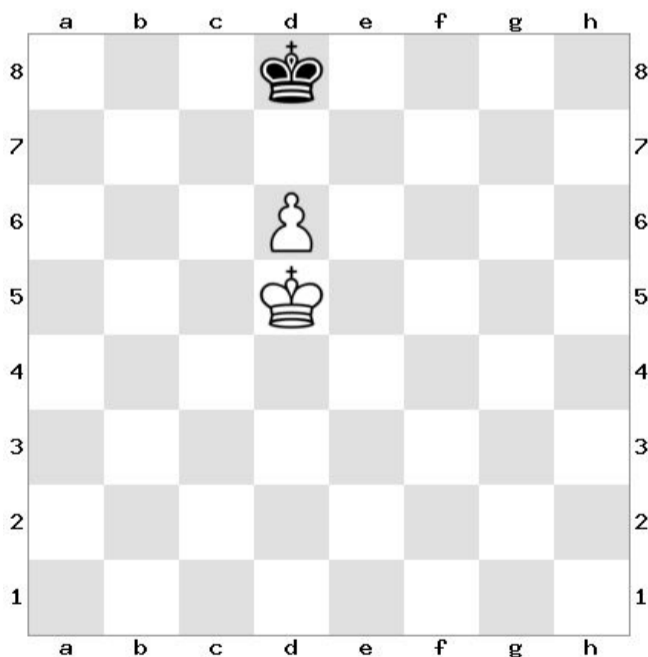


White to move is a draw after 1. d7+ Kd8 2. Kd6 stalemate. After other White first moves Black moves 1. ... Kd7 and draws.

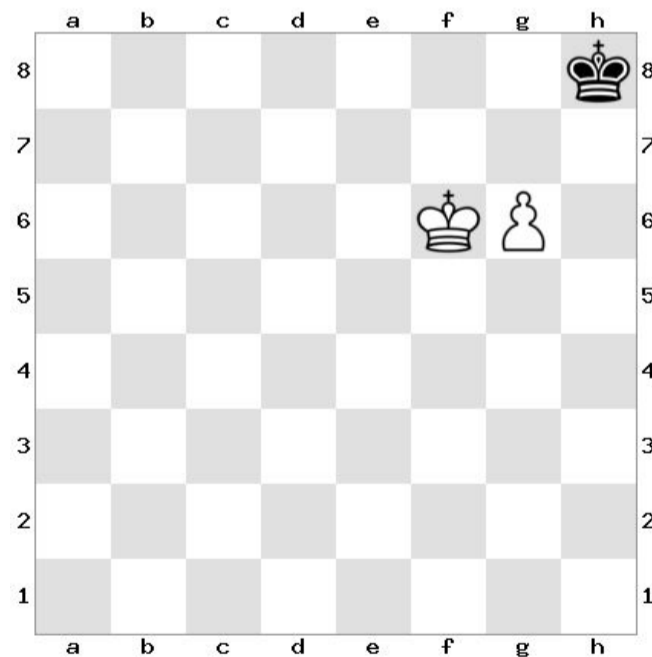


Black can move between d7 and d8. If White later plays Kc6 or Ke6 ... (continued next diagram)

...



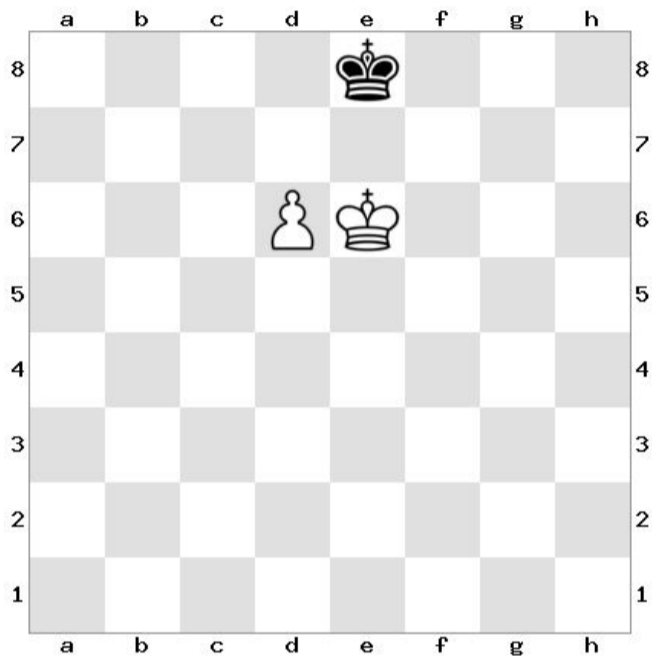
... Black draws by taking the opposition: 1. Kc6 Kc8 or 1. Ke6 Ke8. Against other White moves, Black can play 1. ... Kd7.



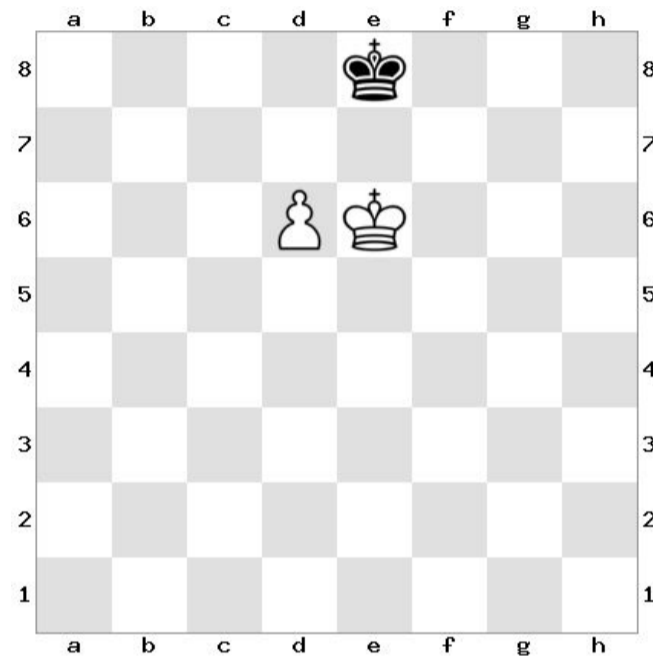
The attacking side needs to be careful with a knight pawn not to advance it to the 6th rank too soon. White to move draws after 1. Kf7 (stalemate), 1. Kg5 Kg7, or 1. g7+ Kg8.

Pawn on the 6th rank - review

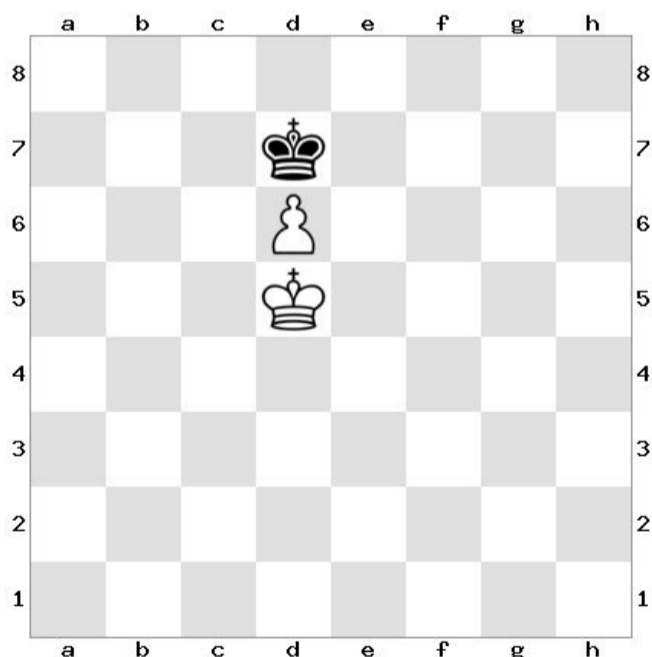
If the attacking side can secure the path to the queening square for their pawn then they can win. If the defending side can block the pawn they can draw. Both sides try to use the opposition to achieve their goal.



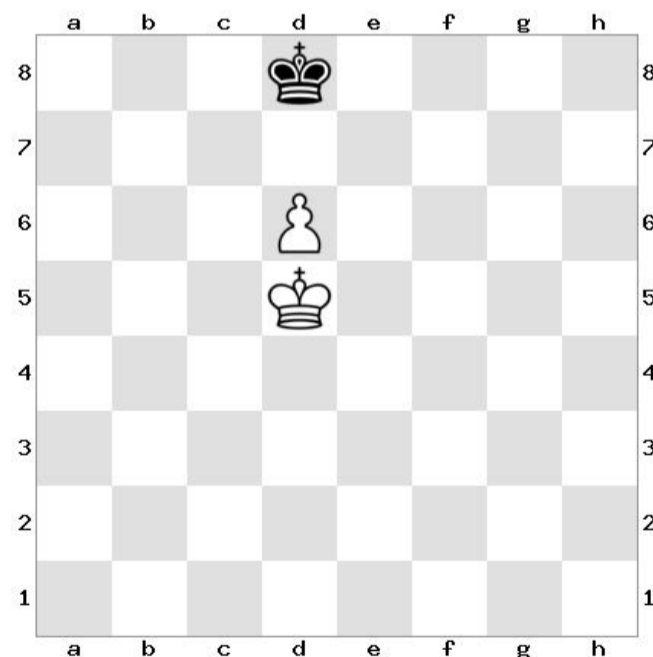
*If it is Black to move, then White has the opposition and wins.
1. ...Kd8 2. d7 wins.*



If it is White to move, Black draws after 1. d7+ Kd8, or, after other White first moves with ... Kd7 (continued next diagram).



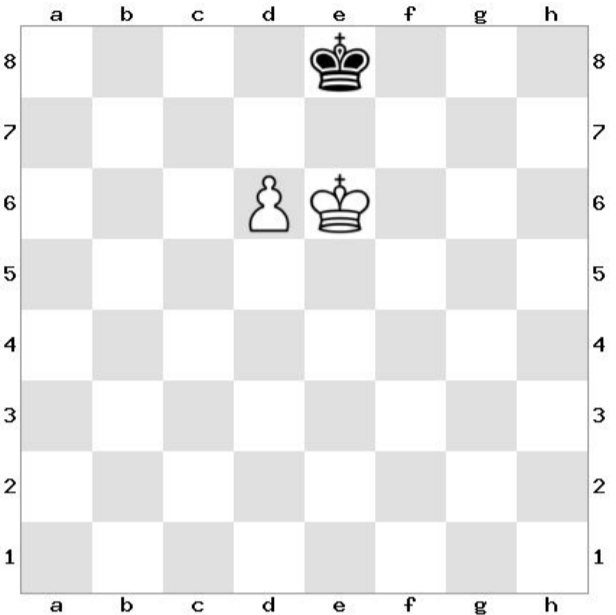
Black draws by moving back and forth between d7 and d8. If White later plays Kc6 or Ke6 ... (continued next diagram) ...



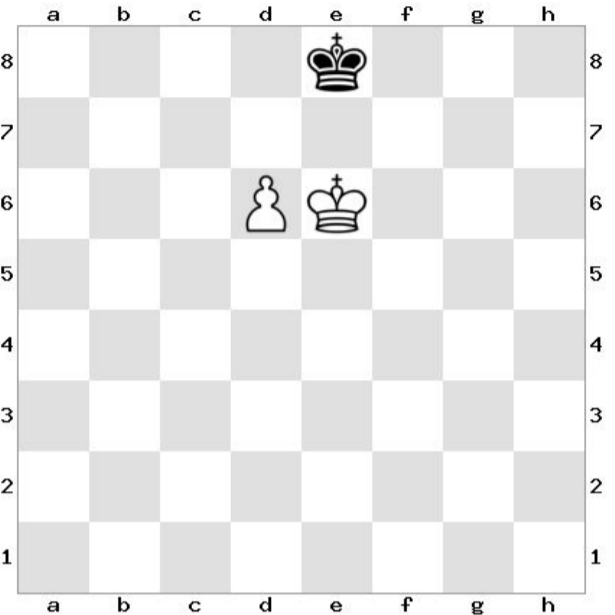
... Black draws by taking the opposition: 1. Kc6 Kc8 or 1. Ke6 Ke8. Against other White moves, Black can play 1. ... Kd7.

Exercises - Pawn on 6th rank

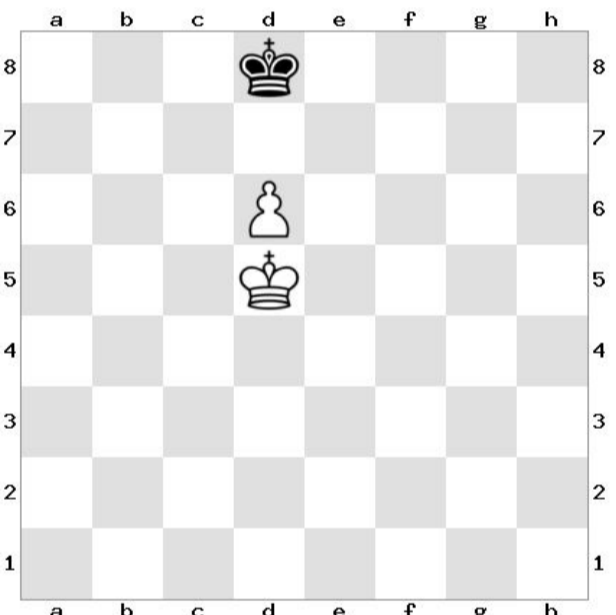
White to move except as noted. Does white win or does black draw? How?



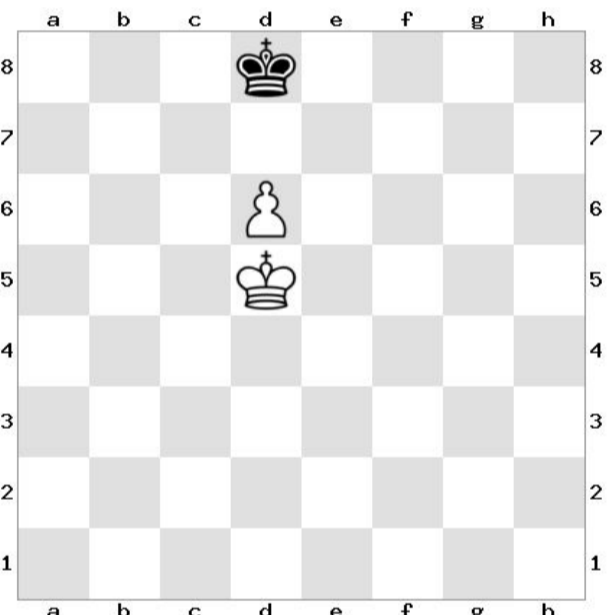
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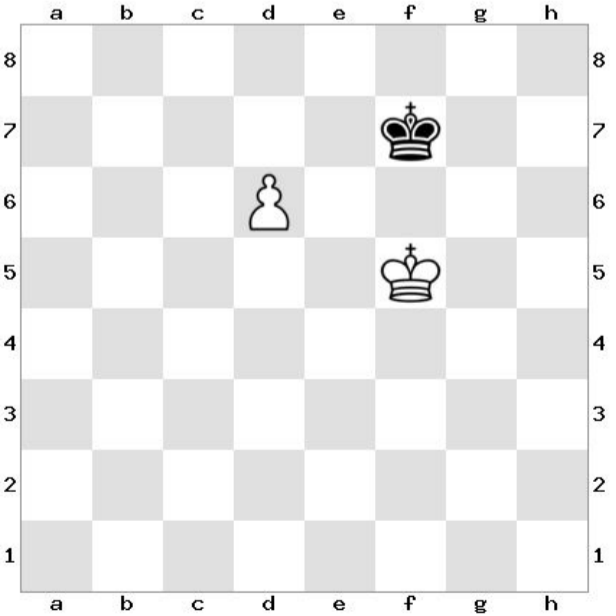
14 Black to move



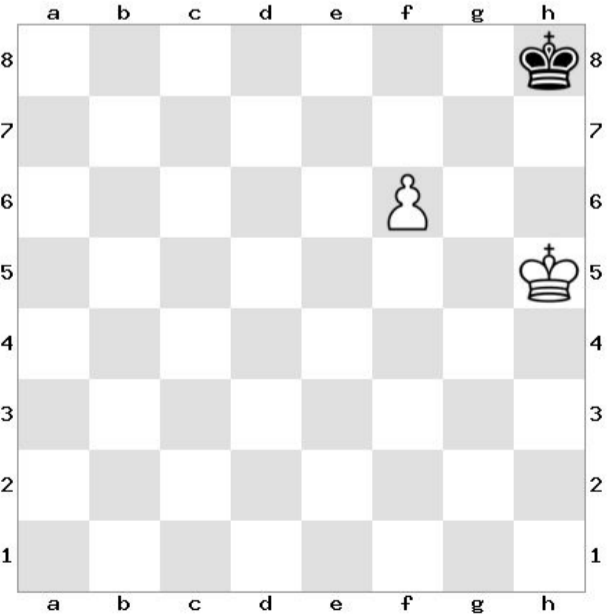
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16 Black to move



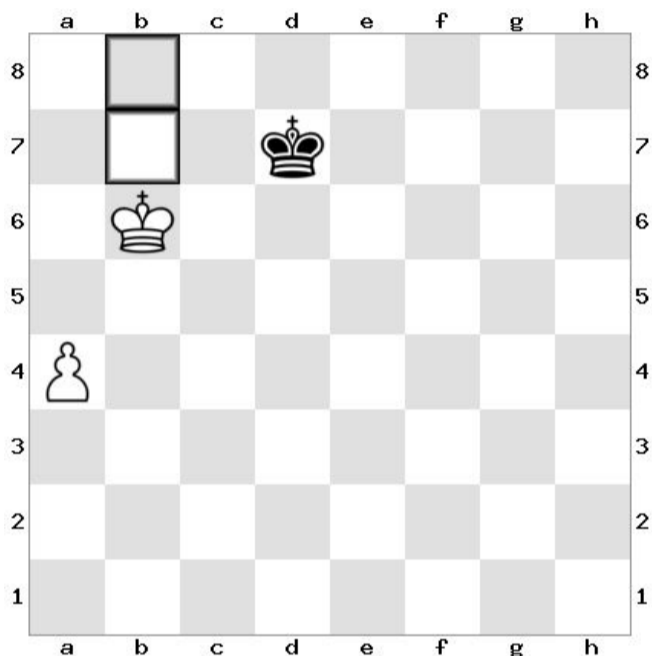
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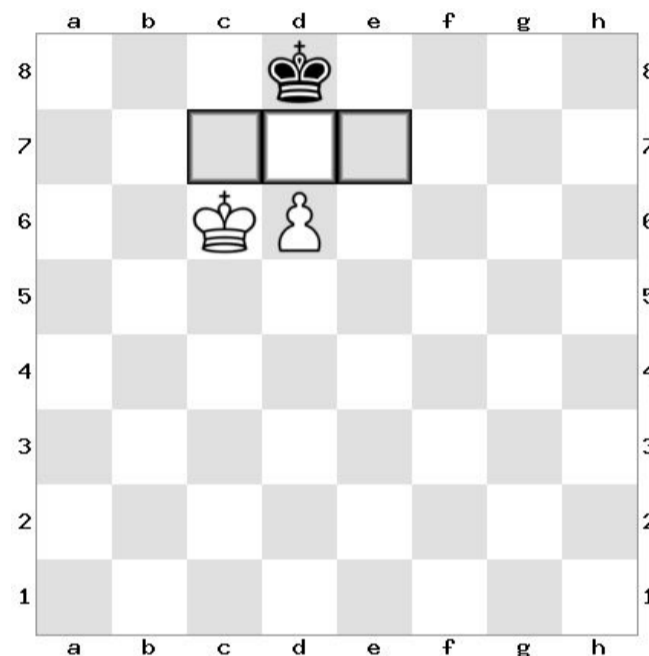
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Critical squares

Critical squares are another concept that can help us understand endgames. *Critical squares* define intermediate goals. For a particular position, if the attacking king can reach one of their critical squares and keep their pawn then they can win. Critical squares are highlighted below.



White to move wins with 1. Kb7. Black to move denies White access to the critical squares: 1. ... Kc8 2. Ka7 Kc7. The white king is trapped or lets the black king in front of the pawn. Draw.`



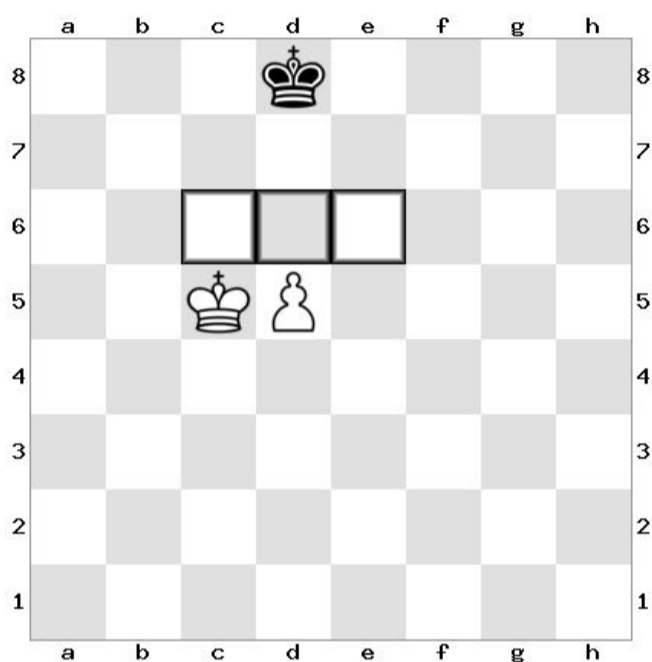
c7, d7 and e7 are critical squares for White. White to move: 1. d7 Ke7 2. Kc7 and the pawn can't be stopped from promoting. White wins.

Like opposition, critical squares do not change the result of the position. They are concepts that help us to think about, talk about and find the right moves in the position.

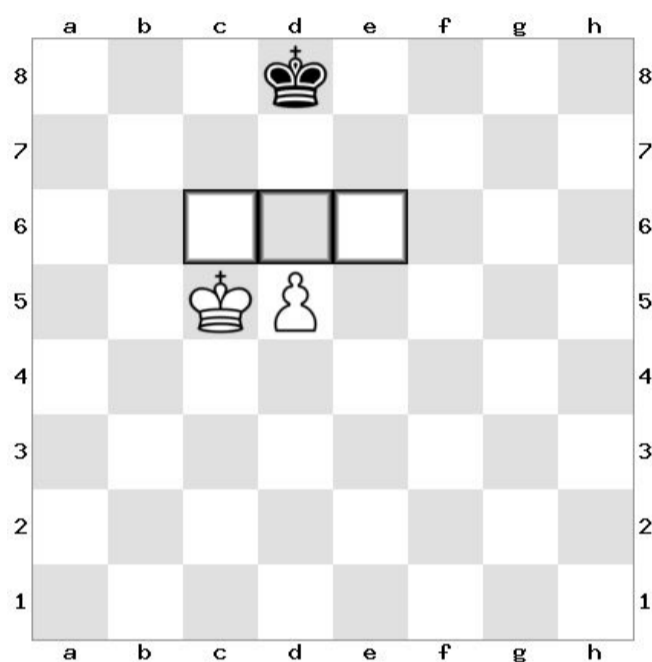
In this text, we will use the concept of critical squares to describe how the attacking side can win by their king reaching critical squares or how the defending side can draw by preventing that.

Pawn on the 5th rank

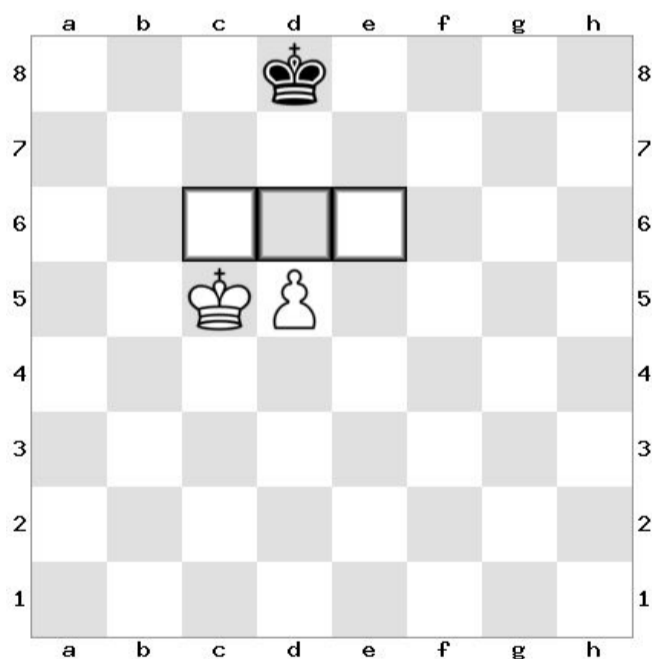
With a pawn on the 5th rank, the critical squares for the attacking side are the three squares in front of the pawn as shown with the highlights below. If the attacking king can reach one of those squares (without losing the pawn), they can win. If they can't, then they can only draw.



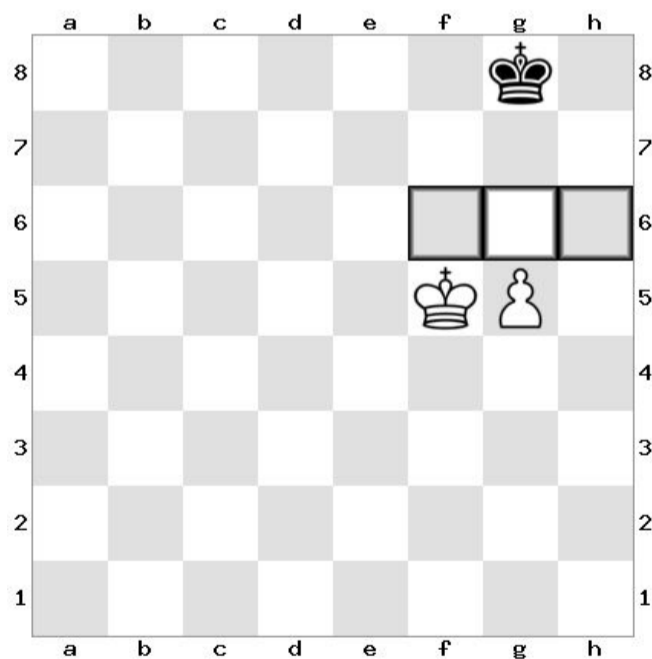
White to move wins by moving their king to a critical square. 1. Kc6 Kc8 2. d6 Kd8 3. d7 or 1. Kd6 Kc8 2. Ke7.



Black to move draws by preventing White from moving to any of the critical squares. 1. ... Kc7 2. d6+ Kd7 or 1. ... Kd7 2. d6 Kd8.



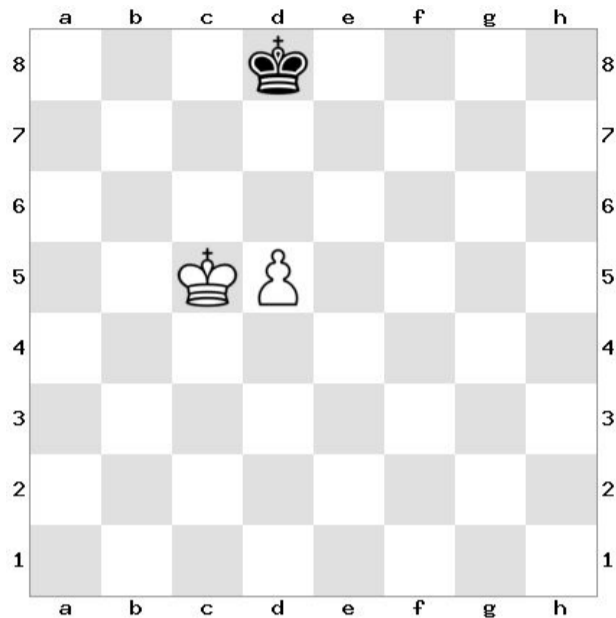
White should be careful not to advance the pawn too soon. White to move only draws by 1. d6? Kd7.



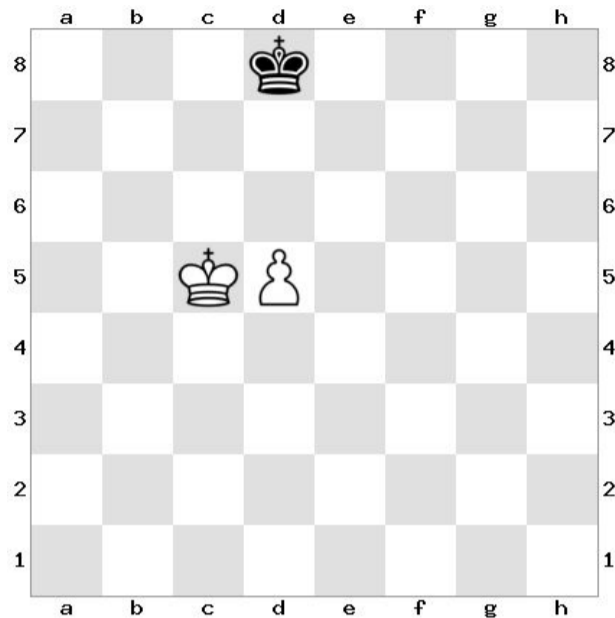
With a knight pawn, White needs to be careful not to draw. 1. Kf6 Kh7 2. g6+? Kh8 3. Kf7 stalemate (other 3rd king moves allow Kg7 draw). Better is 2. Kf7 Kh8 3. Kg6 or the immediate 1. Kg6 and transfer the white king to the rook file to win.

Exercises - Pawn on 5th rank

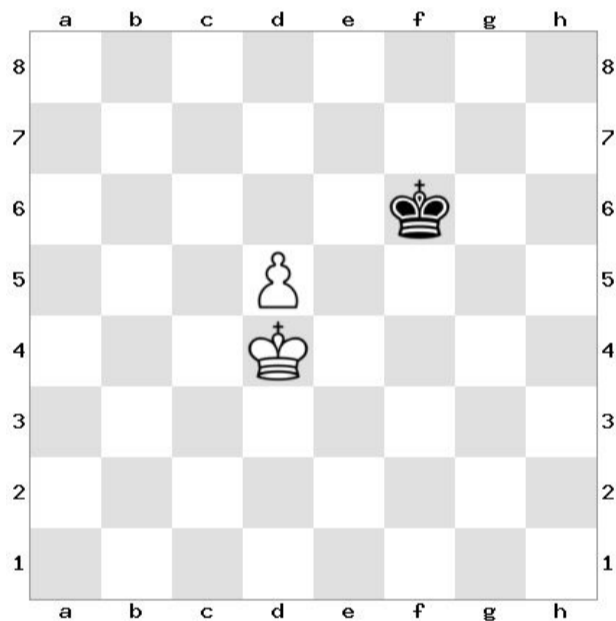
White to move except as noted. Does white win (reach a critical square) or does black draw? How?



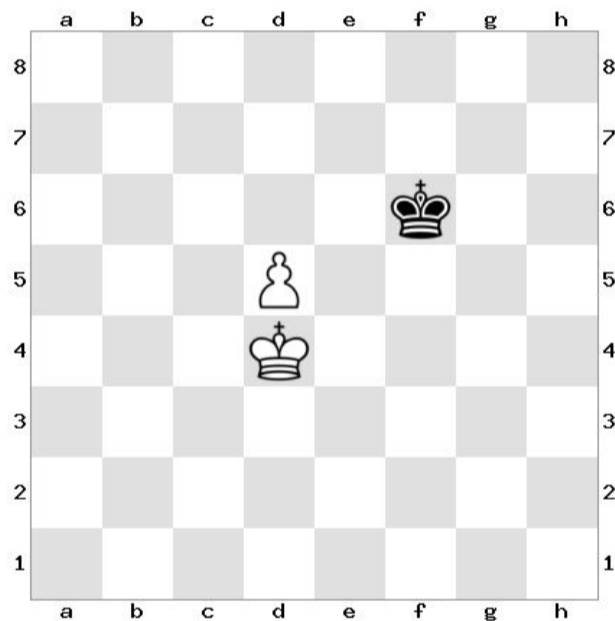
19



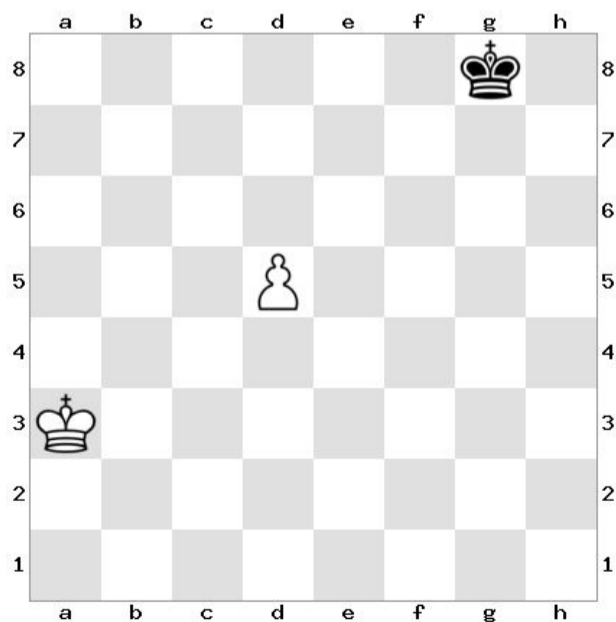
20 Black to move



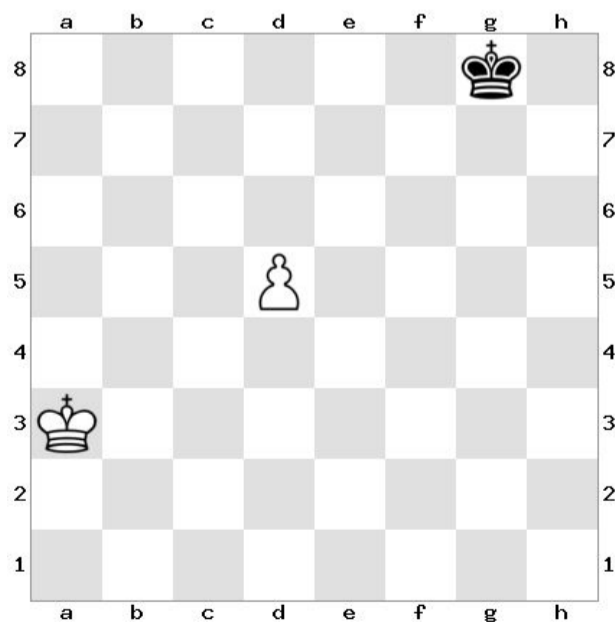
21



22 Black to move



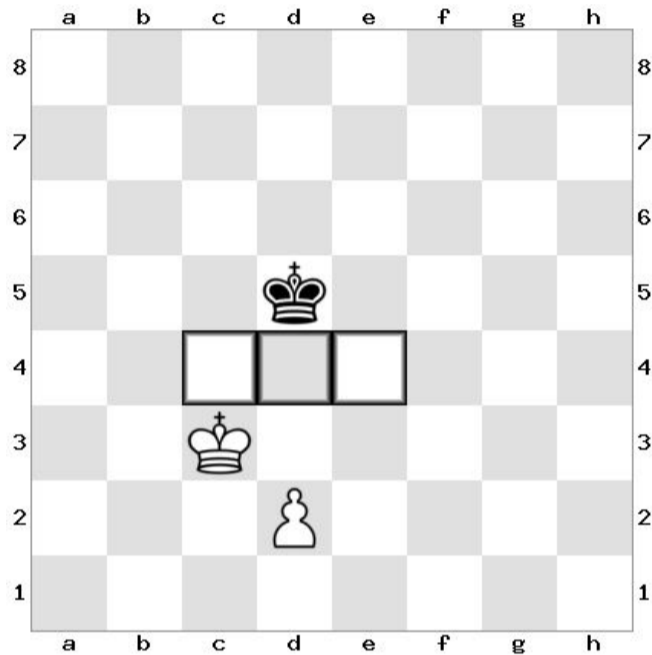
23



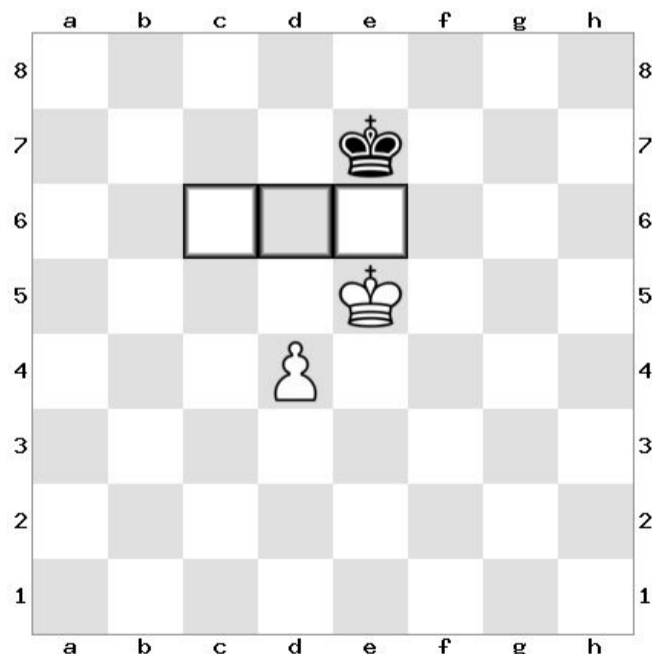
24 Black to move

Pawn on the 2nd, 3rd or 4th rank

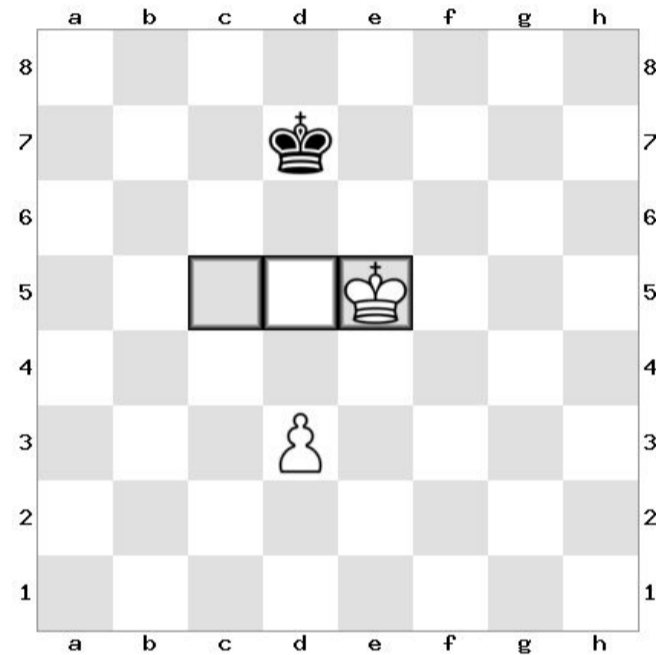
With a pawn on the 2nd, 3rd or 4th rank the critical squares are two ranks ahead of the pawn as highlighted below. Note the critical squares are the same squares for a pawn on the 5th rank and a pawn on the 4th rank. We will follow a winning position from the 2nd rank to the 5th rank and the changes in the critical squares as the pawn moves. White will use opposition to maneuver to critical squares. In the first position below, if it was Black to move, they could draw with 1. ... Kc5.



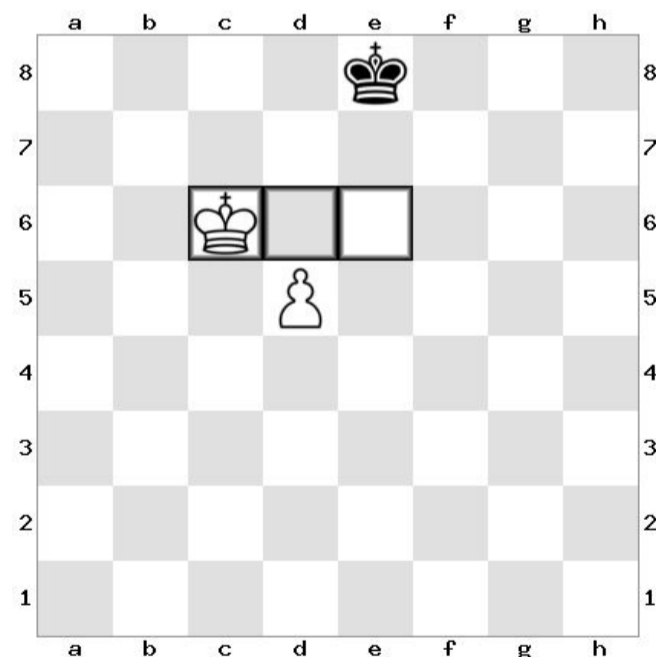
First, White works their way to a critical square: 1. Kd3 Kc5 2. **Ke4**. Next, White moves to a critical square for a pawn on the 3rd rank: ... Kd6 3. Kd4 Kc6 4. **Ke5**. Now, White moves the pawn to the 3rd rank ... Kd7 5. d3 ...



Now the critical squares are c6, d6 and e6. 6. ... Kd7 7. Kd5 Ke7 8. **Kc6** (reaching a new critical square) Ke8 9. d5 ...



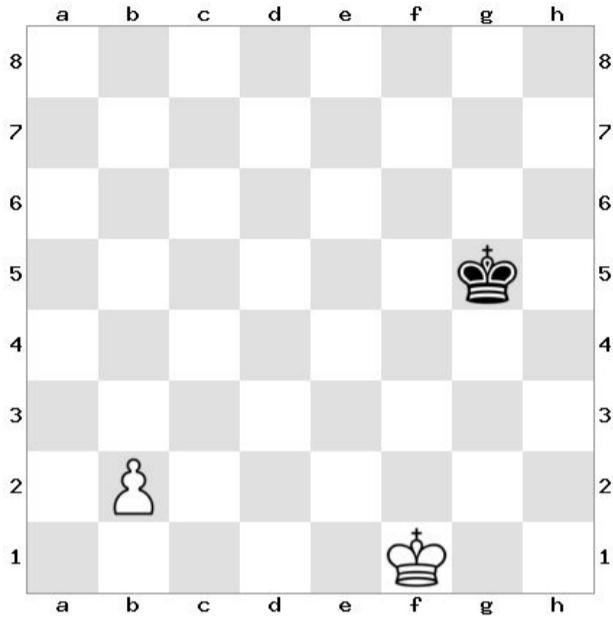
With the pawn move, the critical squares have moved up to c5, d5 and e5. 5. ... Ke7 6. d4 ...



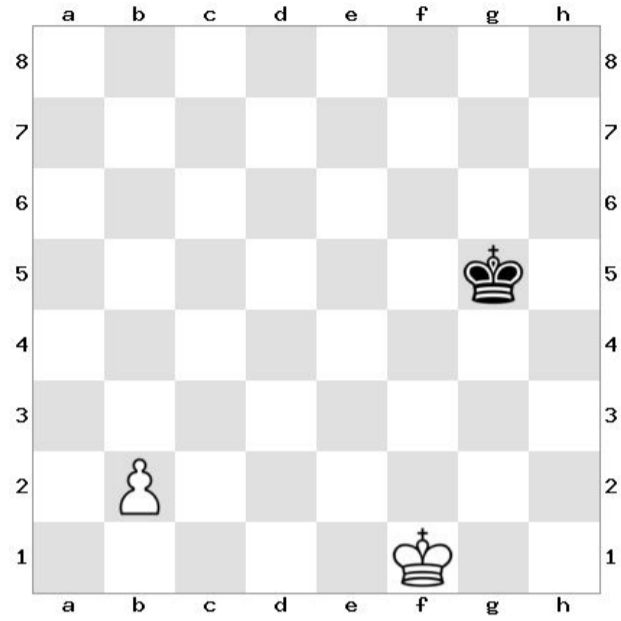
... and we have reached a winning pawn on the 5th rank position. Notice the critical squares don't move when the pawn advances from the 4th rank to the 5th rank.

Exercises - Pawn on the 2nd, 3rd or 4th rank

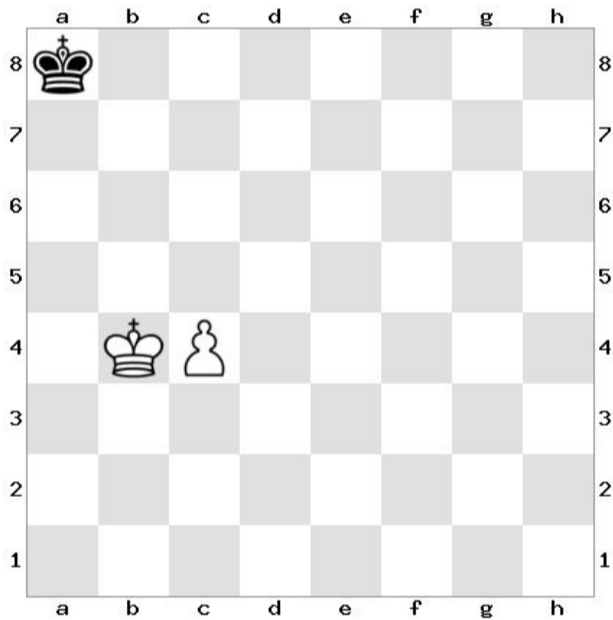
White to move except as noted. Does white win (reach a critical square) or does black draw? How?



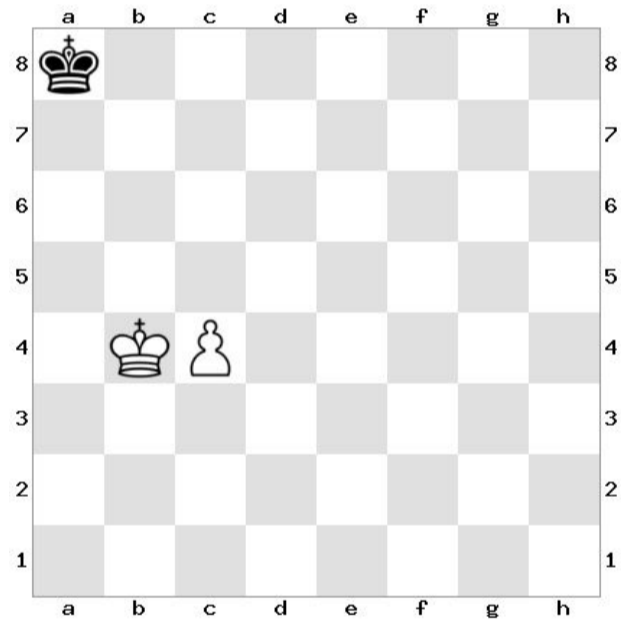
25



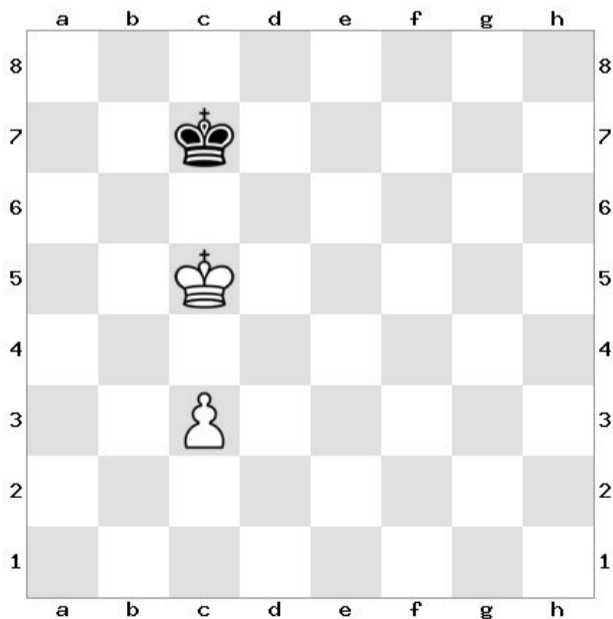
26 Black to move



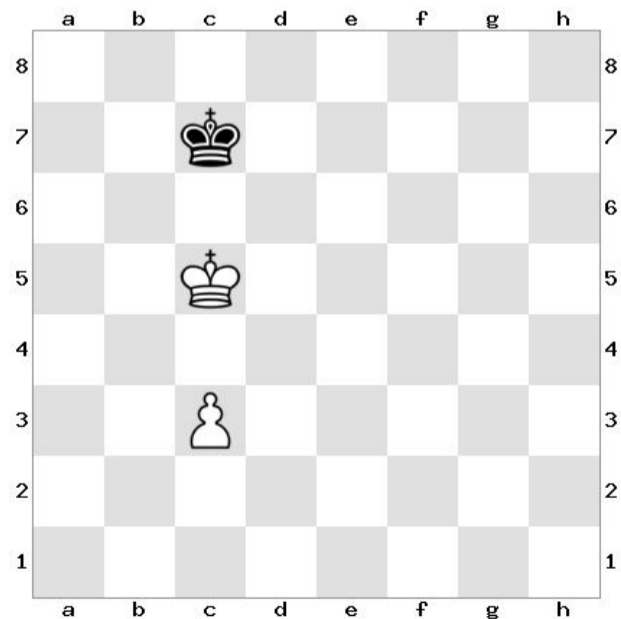
27



28 Black to move



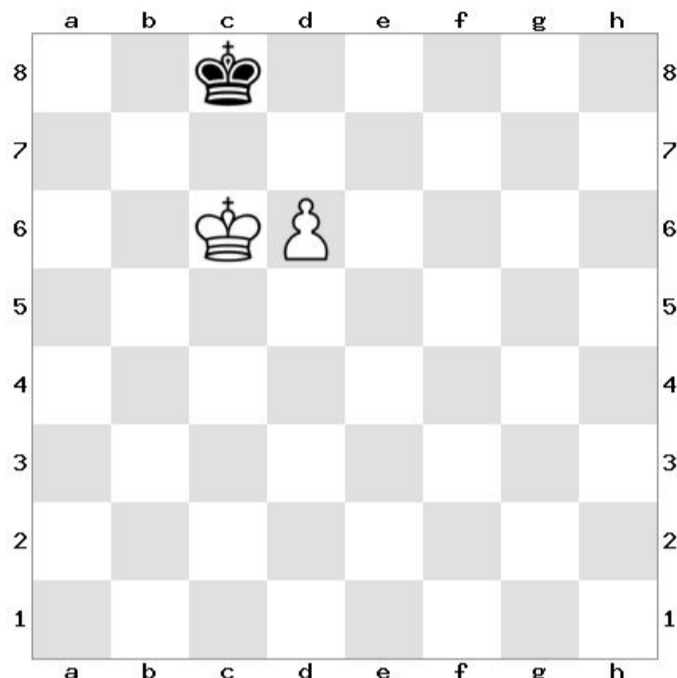
29



30 Black to move

King and pawn versus king

Summary



Topics Covered

- Pawn alone
- Counting
- Square of the Pawn
- Pawn on the 7th rank
- Rook pawn
- Opposition
- Pawn on the 6th rank
- Critical squares
- Pawn on the 5th rank
- Pawn on the 2nd, 3rd or 4th rank

Key Ideas

If the pawn can promote without assistance, push the pawn! Use counting or square of the pawn to tell if it can promote without help.

The defending side can defend by capturing the pawn, blocking the pawn and using stalemate.

The attacking side should lead with the king to gain control of critical squares until the promotion of the pawn is assured.

With a pawn on the 6th rank use opposition to find the right move. Before the 6th rank use critical squares to find the right moves.

Rook pawns are difficult to win with and knight pawns require special care to avoid stalemate.

If you've made it this far and understand this material, congratulations! You are on your way to mastering endgames.

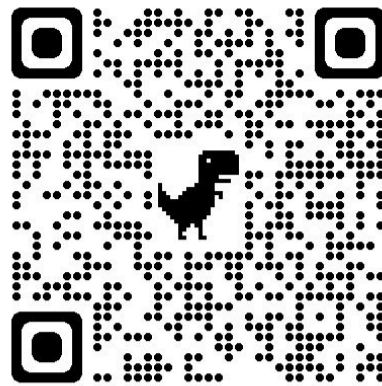
Answers

K = King, Q = Queen,
+ = check, # = checkmate.

Computer analysis of these exercises
available at lichess, QR Code or:

All: <https://lichess.org/study/DHyMt2qn>

Key: <https://lichess.org/study/vrgvx8aP>



All exercises



Practice key positions

1. No. This is position “A” from the text.
2. Yes. The pawn needs 3 moves to reach the queening square, the king needs 4.
3. Yes. This is position “B” from the text.
4. No the pawn and king both need 4 moves to reach the queening square. (White *can* win with the help of their king. See the section Pawn on the 2nd, 3rd, 4th rank.)
5. Yes. The pawn needs 4 moves to reach the queening square, the king needs 5.
6. Yes. The white king does not need to move but blocks out the black king. 1. d4 Kh6 2. d5 Kg5 3. d6 Kf5 4. d7 Ke5 5. d8=Q.
7. Draw. Either 1. Kd6 stalemate or White walks away and Black takes the pawn.
8. White wins after 1. ... Ke7 2. Kc7 and the pawn can't be stopped.
9. Draw. 1. a7 Kc8 stalemate or 1. Ka7 Kc8 2. Kb6 Kb8 and black can step in front of the pawn.
10. Draw. Black can never be forced off of the a-file.
11. White wins. 1. Kc7 and the pawn can't be stopped.
12. Draw. 1. ... Kd8 now 2. Kd6 stalemate or white walks away and Black takes the pawn.
13. Draw. White can't make progress. For example 1. d7+ Kd8 2. Kd6 stalemate. On other 2nd moves Black can take the pawn. Or, 1. Kd5 Kd7 and Black holds the position.
14. White wins. 1. ... Kd8 2. d7 Kc7 3. Ke7 and the pawn can't be stopped.
15. Black draws by taking the opposition if white tries to advance. 1. Kc6 Kc8 or 1. Ke6 Ke8. Against other White moves, Black can play 1. ... Kd7
16. Black draws with 1. ... Kd7.
17. White wins because Black can't keep the opposition. 1. Ke5 Kf8 2. Kf6 Ke8 3. Ke6 Kd8 4. d7 or after 1. Ke5 Ke8 2. Kf6 leads to the same result.
18. White takes the opposition with 1. Kh6 then ... Kg8 2. Kg6 K8 3. Kf7 (not 3. f7 stalemate) ... Kh7 4. Ke7 wins.
19. White wins by moving to a critical square with 1. Kc6 or 1. Kd6.
20. Black draws by preventing White from moving to a critical square. 1. ... Kd7 or 1. ... Kc7.
21. White reaches a critical square and wins with 1. Kc5 then 2. Kc6.
22. Black draws with 1. ... Ke7. For example, 2. Kc5 Kd7 blocking White from reaching any critical squares. Or, 2. Kc4 Kd6.
23. White wins by reaching a critical square with 1. Kb4 2. Kc5 3. Kc6.
24. Black draws with, for example 1. ... Kf7 2. Kb4 Ke7 3. Kc5 Kd7 blocking White from the critical squares.
25. White wins by reaching the critical square c4. 1. Ke2, 2. Kd3, 3. Kc4.
26. Draw. Black can prevent White from reaching any critical squares after, for example, 1. ... Kf4 2. Ke2 Ke4 3. Kd2 Kd4 4. Kc2 Kc4.
27. White wins by reaching the critical square d6 after 1. Kc5 and 2. Kd6.
28. Black draws with 1. ... Kb8 taking the distant opposition (not 1. ... Kb7 2. Kb5 Kc7 3. Kc5 Kd7 4. Kb6 wins) 2. Kb5 Kb7 or 2. Kc5 Kc7 maintaining the opposition and keeping White off of the critical squares.
29. White wins by taking the opposition with 1. c4, for example ... Ke7, then reaching the new critical square 2. Kb6.
30. White wins after, for example, 1. ... Kd7 2. Kb6 Kc8 3. Kc6.