

# Introduction

Chess is played by millions around the world. Due to this, many people have created chess 'variants', games similar to chess that follow different rules. One of the most popular of these variants is "Atomic Chess", a variant where when a piece is captured, the capturing piece is exploded and all non-pawn pieces in a 3x3 area are also exploded, meaning removed from the board. This means that many beginner games end rather quickly, due to how easy it is to win in the opening, and how many moves are forced to not immediately get checkmated.

However once you learn to refute the plethora of opening traps, you find yourself in the middlegame. Here, rooks come into play, and winning positions can easily become drawn or even lost from a deadly rook invasion.

But once the pieces have been traded, we reach the endgame. And it is here so many people lose points or half-points not knowing the correct technique.

My hopes are that this book allows many players to improve their endgame skills, allowing more players to rise to grandmaster level.

# Chapter 1: The Basics

Atomic chess has many differences that must first be addressed before mastering the endgame.

## Adjacent Kings

While being up a queen is a trivial win in standard chess, a little more care must be taken in Atomic.

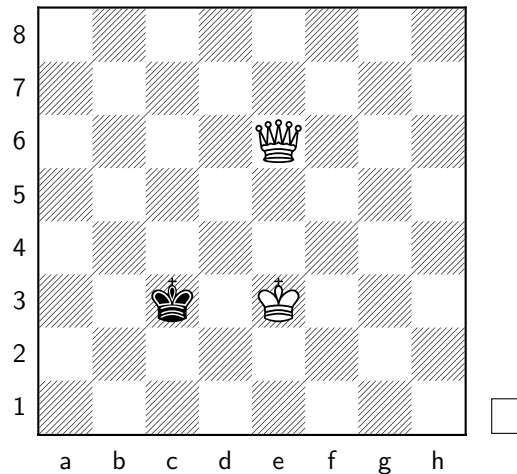


Diagram 1

(Diagram 1) Here a common move for white in standard chess would be

1 ♔c6+??

However in atomic, this is a big blunder!

1... ♚d3!

What? How is this possible? Well, first understand that kings not being adjacent in standard chess is not an official rule. Rather, it is a 'rule' because since kings being adjacent is check for both sides, it is thus an illegal position. However in atomic, the explosion rule means that kings cannot capture, thus adjacent kings is not check. Thus adjacent kings are possible, and are often an important resource.

In addition, since capturing one of these kings with another piece would explode the other, kings are immune to checks while adjacent to the opposing king. Because of this, this position is now a draw, as white cannot force the black king to move away from their own king.

However, white was winning in the initial position with

1 ♜f3!

Now black cannot immediately connect the kings.

1... ♚d3

Black tries to connect the kings next move.

2 ♜g3! (Diagram 2)

Now black can no longer follow as the white queen controls the e-file.

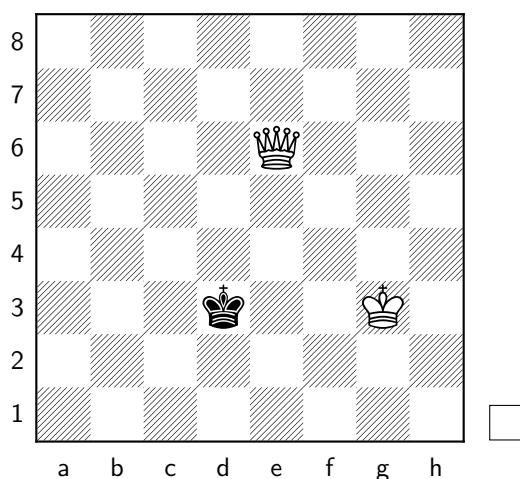


Diagram 2

### Checkmating with a Queen

(Diagram 2) Since kings cannot capture, checkmating with a queen is quite easy.

1 ♔e3+ ♚c4 2 ♔d4+ ♚b3 3 ♔c3+ ♚a2 4 ♔a2#

### Insufficient Material

As the king cannot aid in checkmating, a king and rook, knight, bishop, or 2 knights is insufficient material, and checkmate cannot be forced with 2 bishops or a bishop and knight (though is theoretically possible)

### Checkmate with adjacent kings

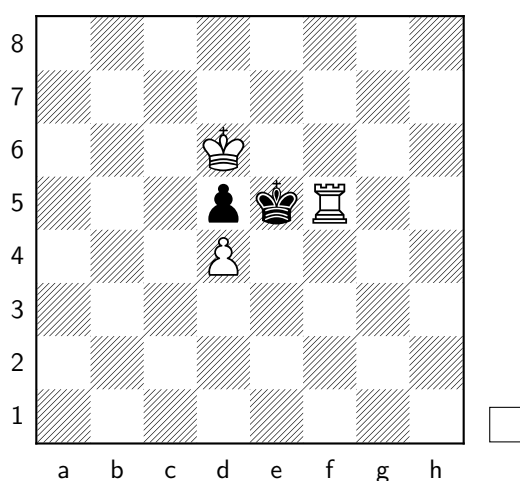


Diagram 3

(Diagram 3) Sometimes checkmate can still occur with adjacent kings.

1 ♚c7!

Or **1 ♔d7** with the same result.

**1... ♕d6**

Despite the kings being adjacent, we have checkmate!

**2 ♖x d5#**

Notice that:

a) this was only checkmate as the black king was next to the pawn and the white king wasn't, and

b) regardless of where the king moved **2 ♖x d5** was mate regardless.

You are now armed with the necessary information to begin learning atomic endgames.

# Chapter 2: Queen Endgames

This chapter is all about how to win with a queen, including with connected kings. Being able to checkmate a disconnected king (i.e. disconnected from the opposing king) with a queen is assumed knowledge for this chapter.

## Example 1: Checkmate with 2 Queens

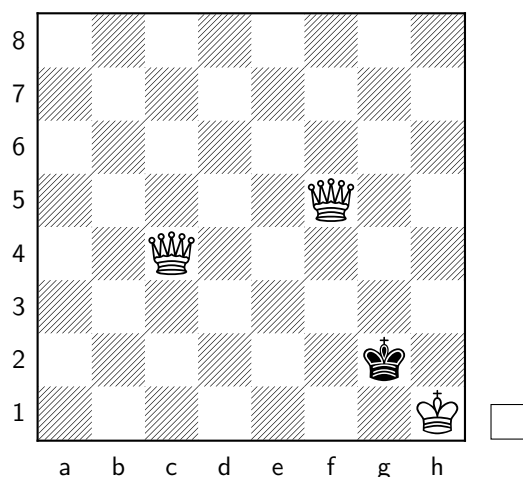


Diagram 1

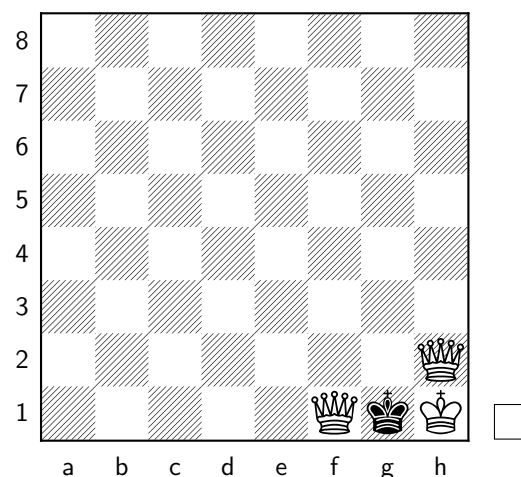


Diagram 2

(Diagram 1) With an extra queen, we can win despite the connected kings by getting into the position shown in Diagram 3 with black to move.

**1 ♕h3 ♖h2**

Our queen cannot get to the right square (h2), so we make a waiting move (meaning a move that makes minimal difference to the position)

**2 ♕h4! ♖g1 3 ♕h2**

One queen down, one to go.

**3... ♖g2 4 ♕f1 ♖g1 (Diagram 2) 5 ♕e1!** Making another waiting move, forcing black to give way.

**5... ♖g2 6 ♕eg1! (Diagram 3)**

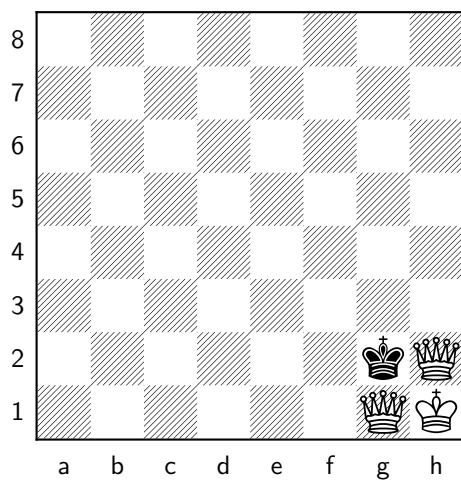


Diagram 3

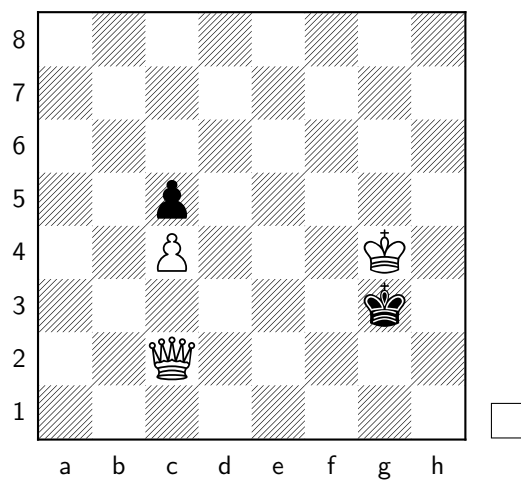


Diagram 4

The black king is forced to move away.

6... ♔f3 7 ♕gg2+

Preventing the black king from reattaching to the white king.

7... ♔e3 8 ♕e4#

### Opposing Pawns

#### Example 2:

(Diagram 4) Despite only having a queen, the opposing pawns tip the balance to a win. We must first get our queen two squares to the side of the opposing pawn (i.e. a5 or e5).

1 ♕f5 ♔f3 2 ♕e5 (Diagram 5)

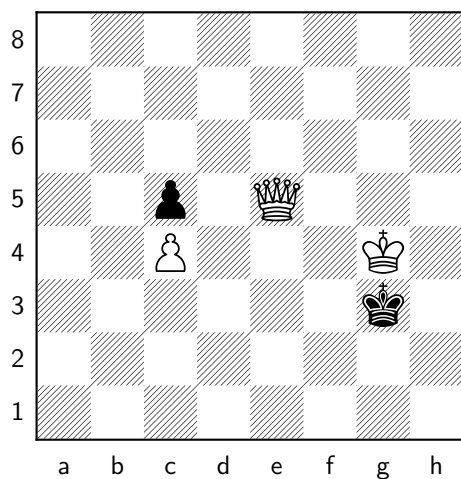


Diagram 5

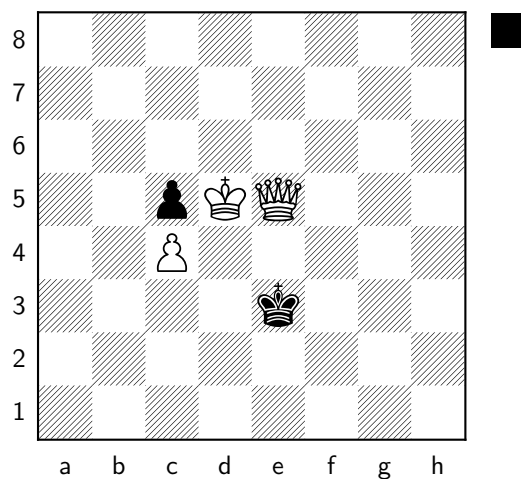


Diagram 6

Creating a "gate" between the queen and the pawn. Now we bring our king through the gate.

2... ♔g3 3 ♔f4 ♔f3 4 ♔e4 ♔e3 5 ♔d5+! (Diagram 6)

Now we bring our king diagonally left behind the pawn.

5... ♔d4 6 ♖c6+ ♔d5 7 ♖b7+! (Diagram 7)

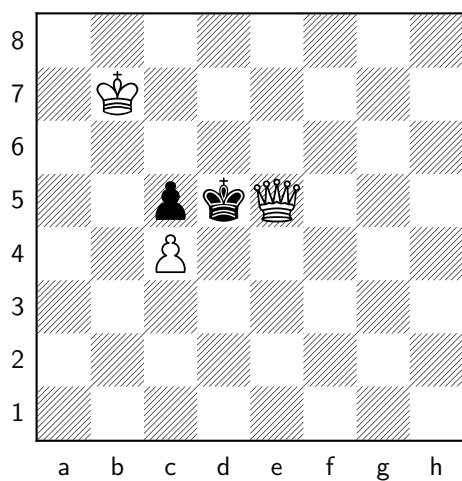


Diagram 7

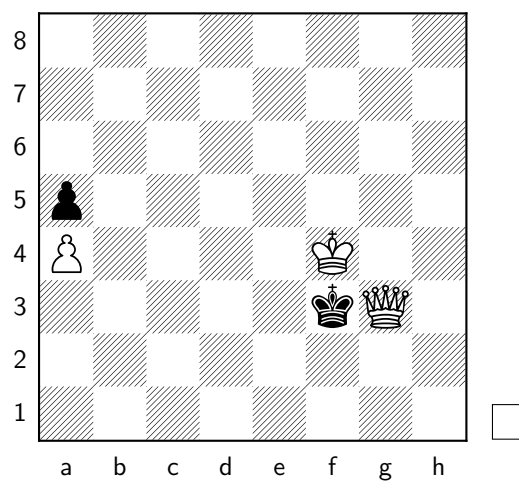


Diagram 8

This is the same situation we had in Chapter 1, Diagram 3, but with a queen instead of a rook.

7... ♔c6 8 ♔xc5#

### Example 3:

(Diagram 8) With a rook pawn the process is very similar.

1 ♔g5 ♔e4 2 ♔c5 ♔f3 3 ♔e4 ♔e3 4 ♔d4 ♔d3 5 ♔c4 ♔c3 6 ♔b5+ ♔c4 7 ♔a6+ (Diagram 9)

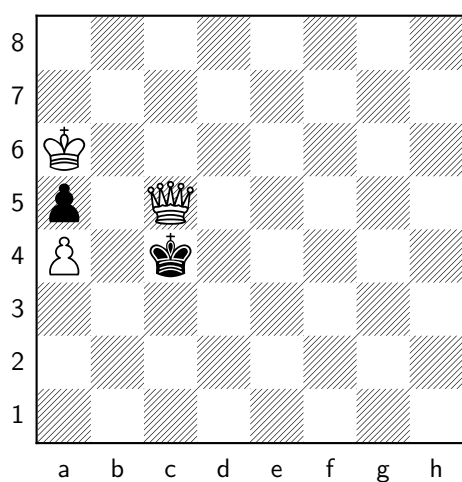


Diagram 9

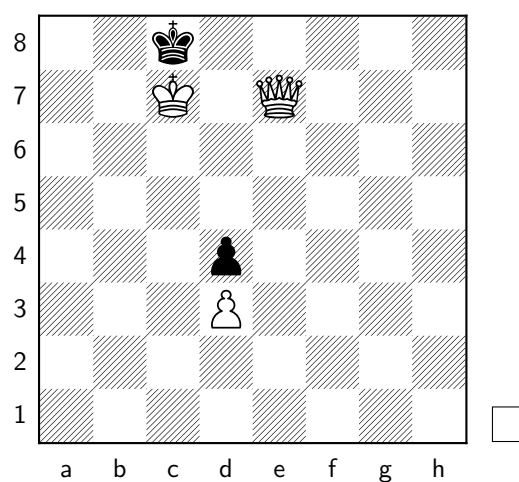


Diagram 10

Similar to Example 2, but we can't keep going left! Luckily going straight up works just as well.

7... ♔b5 8 ♔a7+ ♔b6 9 ♔xa5#

### Example 4:

(Diagram 10) 1 ♔b4 ♚d7

For white to win, the white king must go through the gate from white's side of the board. Observe **2 ♖c6 ♖c7 3 ♖c5 ♖c6 4 ♖c4 ♖c5 5 ♖b3+** (5 ♖c3+ ♖c4 **6 ♖d2+** would work if it was legal! Unfortunately the black pawn controls c3) **5... ♖c4 6 ♖c2 ♖b3! 7 ♖d2 ♖c2!** and black isn't forced to go next to the pawn without the white king also adjacent. **2 ♖d6 ♖e6 3 ♖e5 ♖f5 4 ♖f4 ♖g5 5 ♖f3 ♖f4 6 ♖e2 ♖f3 (Diagram 11)**

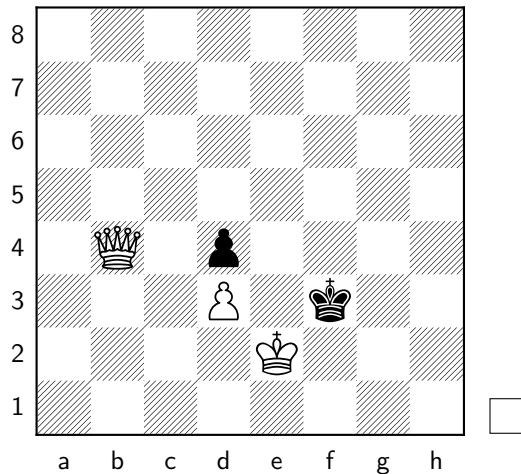


Diagram 11

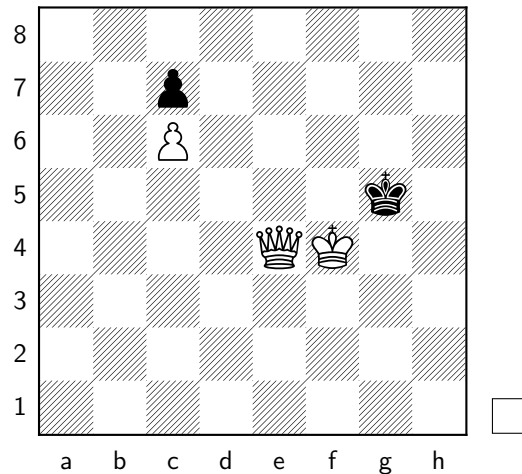


Diagram 12

Note how **6...** ♔e3 **7** ♚xd4# is mate immediately! Now the white king is on the correct side of the pawns and is ready to go through the gate.

7 ♖d2 ♗e2 8 ♖c2 ♗d2 9 ♗b3+ ♖c3 10 ♗c4 ♗b3 11 ♗d5+ ♗c4 12 ♗e6+ ♗d5 13 ♗x d4#

### Example 5:

(Diagram 12) A similar strategy can be used for an unadvanced black pawn.

1 ♔e7 ♚f5 2 ♔e5 ♚e6 3 ♚d6 ♚d7

Blocking our path, so we wait by stepping to the side.

4 ♔e6! ♔d6 5 ♔d7 ♔e6 (Diagram 13)



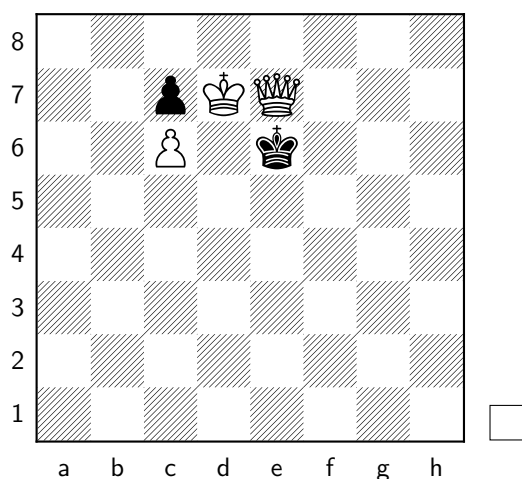


Diagram 13

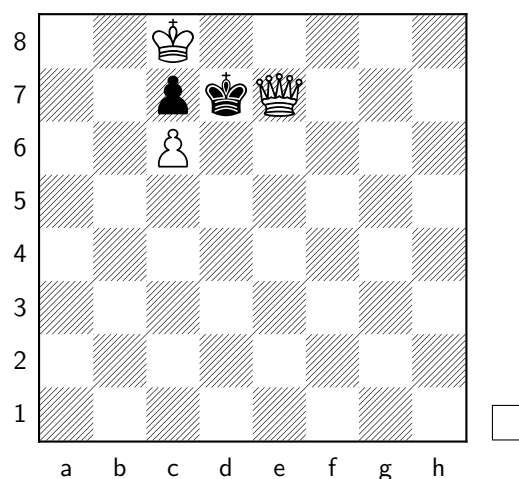


Diagram 14

6 ♖c8+ ♕d7 (Diagram 14)

Since white can't go to b9, white must go left and take an extra move to exit the blast radius.

7 ♖b8+ ♕c8 8 ♖a8 ♕b7 9 ♔xc7#

### Example 6:

(Diagram 15) With opposing knight pawns a different technique must be used.

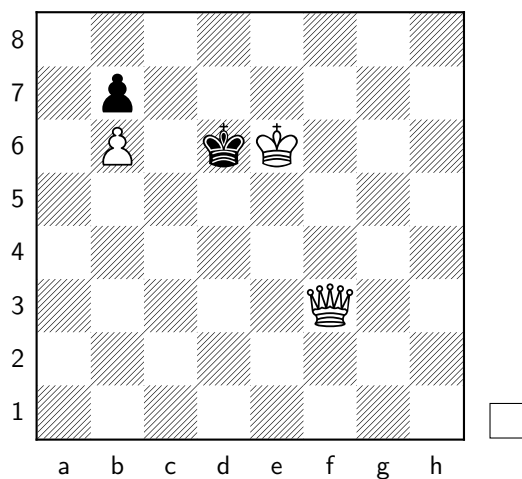


Diagram 15

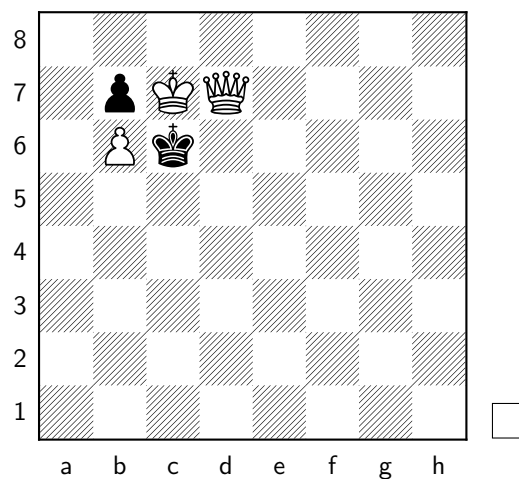


Diagram 16

1 ♔f7 ♕d7

Blocking our queen from getting into position, so we use this move to stop any more of this blocking business.

2 ♔e7!

Forcing the black king to move away.

2... ♕d6 3 ♔d7 ♕e5 4 ♕d6 ♕d5 5 ♖c7+ ♕c6 (Diagram 16) 6 ♖c8+!

The easiest way to win. With no way to get out of the blast radius if we go left, we need to get into a different position.

6... ♔c7 7 ♔d8! (Diagram 17)

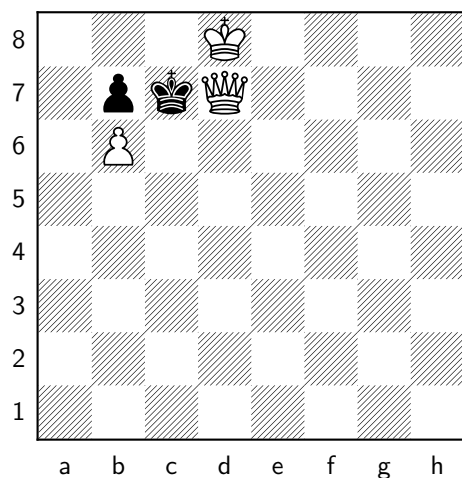


Diagram 17

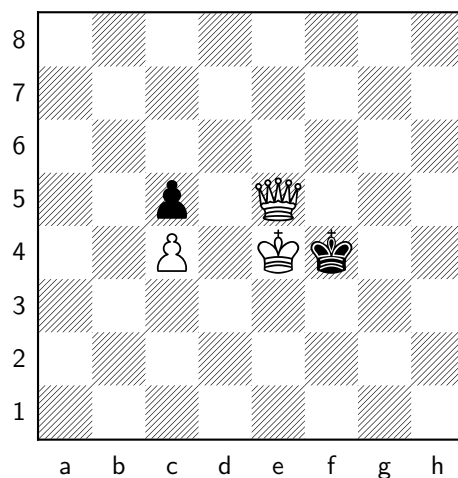


Diagram 18

Putting black in zugzwang, as the d8 square is no longer available. Black must move their king to another square next to the pawn, allowing checkmate.

7... ♔c8 8 ♔xb7#

### Example 7:

(Diagram 18) Here's a trick the defender can use, and how to break the defense.

1... ♔f5!?

Preparing to meet 2 ♔d5?! with 2... ♔e6! and no progress has been made. However there is an easy way to win.

2 ♔d3+! ♔e4 (Diagram 19) 3 ♔d4!

This square was not able to be used before, as the black pawn defended this square. Now the black king is adjacent to d4, thus this square is now available for use.

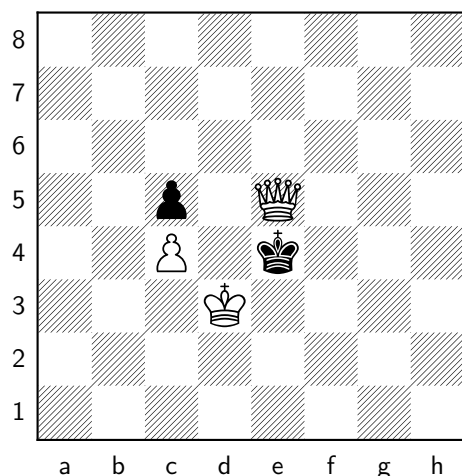


Diagram 19

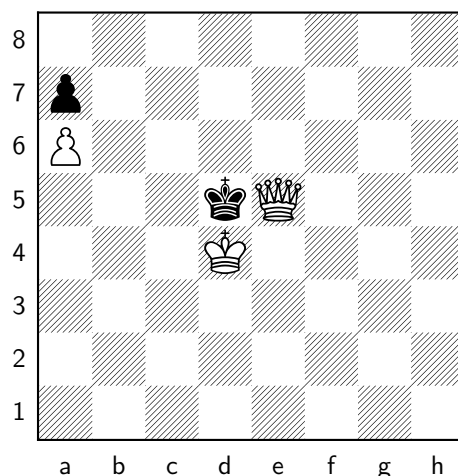


Diagram 20

3... ♔d5

Any other king move allows 4 ♔d5 when the standard technique can be used.

4 ♔c3!

Now any move allows 5 ♚xc5#.

### Example 8:

(Diagram 20) With a rook pawn white can use a similar strategy to 2 queens.

1 ♔c5 ♔c6 2 ♔b6 ♔b7 3 ♔c7 ♔b8 4 ♔b7 ♔a8 5 ♔b8 ♔b7 6 ♔a8 ♔b8 7 ♚e8 ♔b7  
8 ♚b8 (Diagram 21)

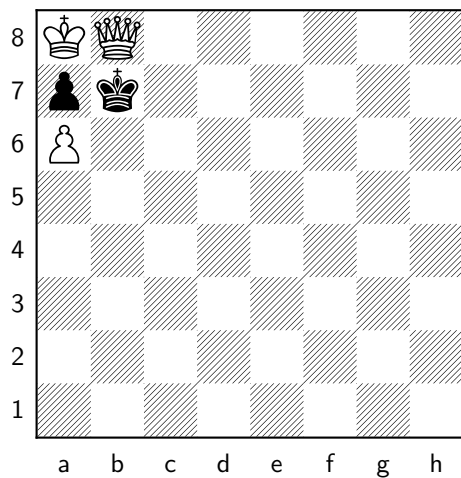


Diagram 21

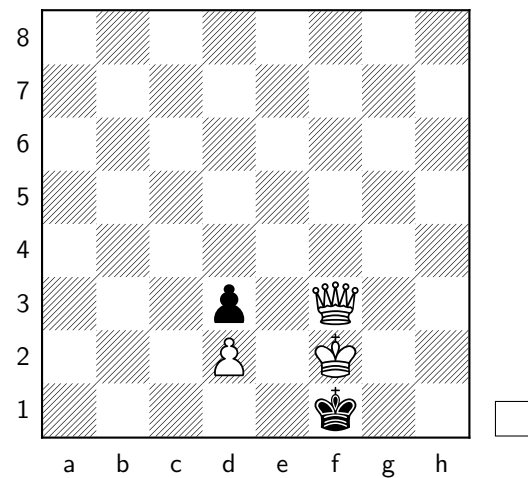


Diagram 22

Forcing the kings to disconnect. Notice how this is just like the position with 2 queens, but with the black pawn as the second queen.

8... ♔c6 9 ♚b7+ ♔d6 10 ♚c6+ ♔e5 11 ♚d5+ ♔f6 12 ♚e6+ ♔g7 13 ♚f7+ ♔h6  
14 ♚g6#

### Example 9:

(Diagram 22) White uses the usual technique and plays:

1 ♔e3+

However black sets a trap!

1... ♔e1!? (Diagram 23) 2 ♚g3+!

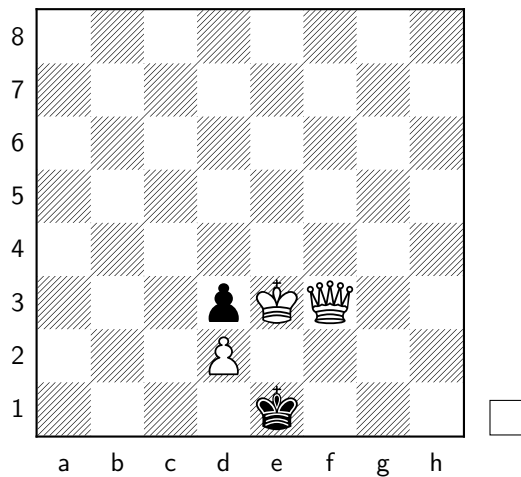


Diagram 23

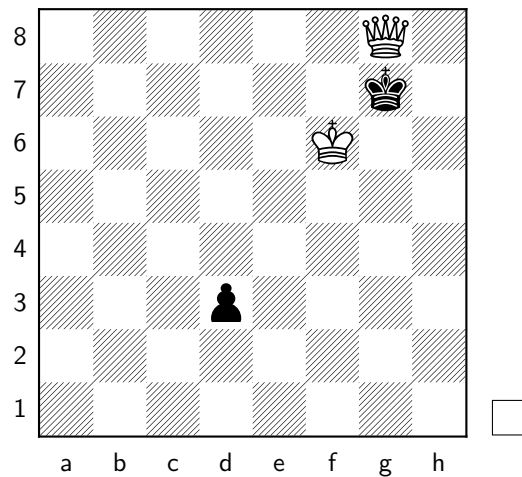


Diagram 24

The simplest way to win. White needs to avoid 2 ♔d4?? which is stalemate!

2... ♔f2 3 ♔d4 ♔e3 4 ♔c5 ♔d4 6 ♔x d3#

### Queen vs Pawn

#### Example 10:

(Diagram 24) To win this, we must first block the pawn. However, many obvious moves fail.

1 ♔a2?? d2!

1 ♔b3?? d2 2 ♔d1 ♔f7! draws for reasons you will see in the next example.

The safest way to win is to block with the king.

1 ♔e5+! ♔f6 2 ♔d4! ♔e5

Or 2... d2 (Diagram 25) 3 ♔c3! where 3... d1 ♔ 4 ♔e6+ is mate in 3, and 3... ♔e5 falls into 4 ♔b2 ♔d4 5 ♔d5+! ♔c3 6 ♔x d2#. The move that holds on the longest is underpromoting to a knight with check, however this only delays the inevitable by 1 move.

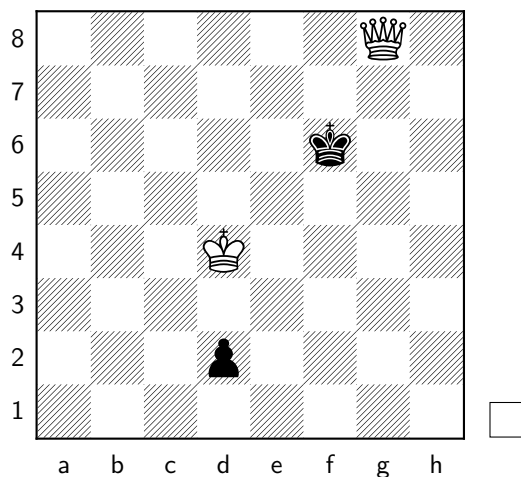


Diagram 25

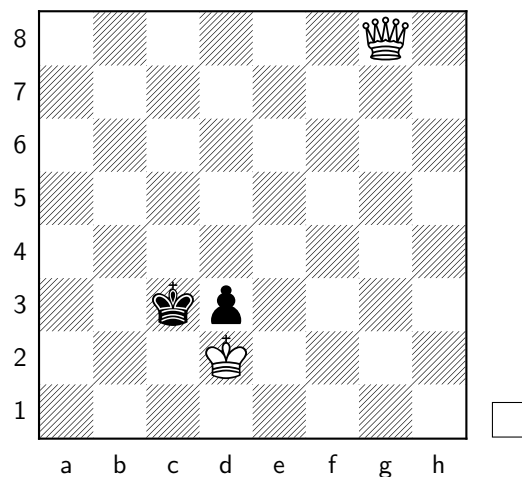


Diagram 26

3 ♖c3 ♖d4

If black tries 3...d2 then 4 ♖b2! reaches the same position as above, but with a different move order.

4 ♖d2! ♖c3 (Diagram 26)

The pawn is now blockaded, but how do we win? First, get your queen behind the pawn.

5 ♕d5 ♖c2 6 ♕d4

If 6...♖c3 or 6...♖c1 then 7 ♖e3 ♖d2 8 ♖f4 ♖e3 9 ♕xd3# wins easily enough (this also works with the king on c2).

6...♖d1!? (Diagram 27)

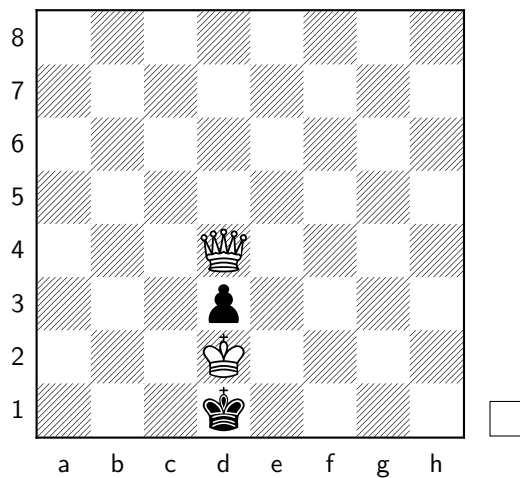


Diagram 27

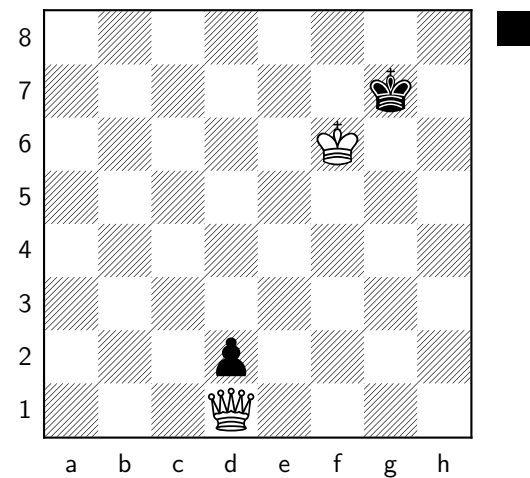


Diagram 28

Now 6 ♖e3 ♖e2 7 ♖f4 ♖f3 doesn't work. Black has opposition, so we make a waiting move.

8 ♕c4!

This move does nothing. And that's what we want. Now black has to choose a side.

8...♖e2 9 ♖c3! ♖d2 10 ♖b4! ♖c3 11 ♕xd3#

### Example 11:

(Diagram 24) Here an obvious move would be:

1 ♕b3?

Preparing to block the pawn. However black can draw!

1...d2! 2 ♕d1 (Diagram 28) 2...♖f7!

Now black can always stay one square above the white king. There is no square where the white king is not next to the pawn and the square above is. If the queen moves, black promotes.

3 ♖e5 ♖e6 4 ♖d4 ♖d5 5 ♖c3 ♖c4 6 ♖c2 ♖c3 7 ♖b1 ♖b2 8 ♖c1 ♖c2 9 ♖b2 ♖b3 10 ♖c3 ♖c4 11 ♖d4 ♖d5 12 ♖c5 ♖c6 13 ♖d6 ♖d7 14 ♖c7 ♖c8 15 ♖d8 ♖d7! 16 ♖e8 ♖e7! 17 ♖f8 ♖f7! 18 ♖e7 ♖e8!

If white tries to shake the black king by going to the 8th rank, black can go directly below, where once white leaves the back rank black again goes above. The game is a draw.

### Example 12:

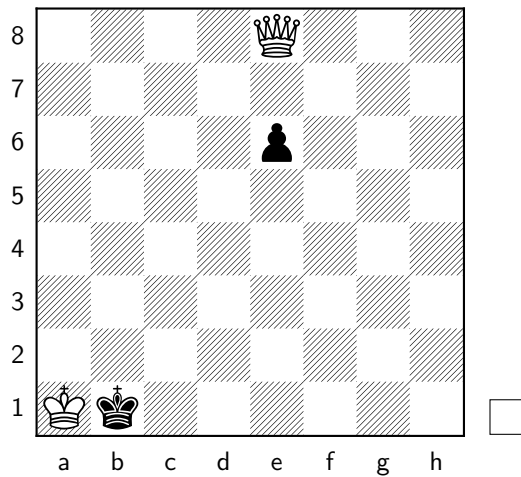


Diagram 29

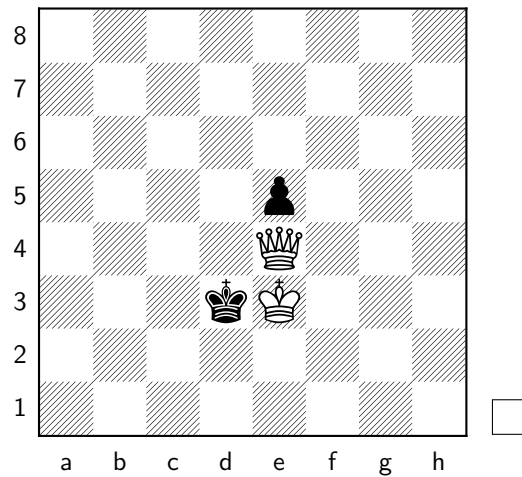


Diagram 30

(Diagram 29) With the pawn further away from promotion the winning technique is much simpler.

1 ♔c6 e5 2 ♔e4

The easiest way to win. We don't need to immediately block with the king here, as the pawn doesn't immediately promote.

2... ♕a2 3 ♕b2 ♕b3 4 ♕c3 ♕c4 5 ♕d3 ♕c3 6 ♕e3 ♕d3 (Diagram 30) 7 ♔d5 ♕d2 8 ♕e4+ ♕e3

Now our king blockades the pawn, and the same process can be applied as last example.

9 ♔e6 ♕f4 10 ♕d5 ♕e4 11 ♕e6 ♕d5 12 ♔xe5#

### Example 13:

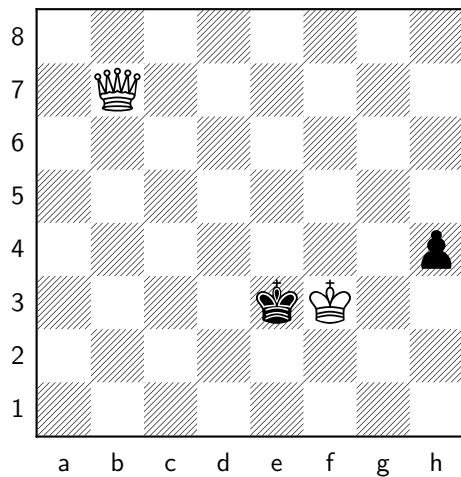


Diagram 31

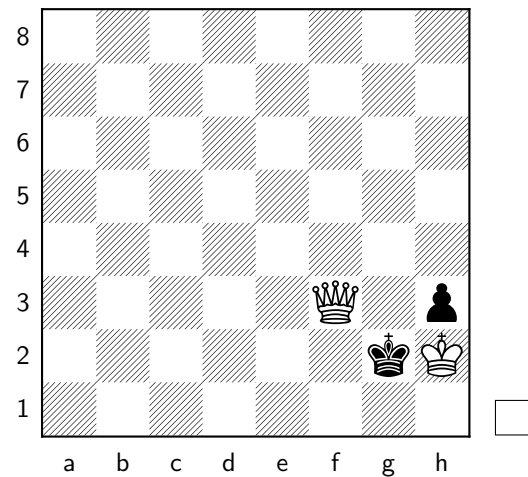


Diagram 32

(Diagram 31) Here we can immediately block with the king.

1 ♔g2 h3+ 2 ♕h2 ♕f2

Now we make the gate like we did with opposing pawns.

3 ♖f3+ ♔g2 (Diagram 32)

We would like the king to be either below or above the king. 3... ♔g1 transposes into the main line a move earlier, and if 3... ♔g3 then 4 ♕h1+ ♕g2 5 ♖xh3# is mate in 2.

4 ♖e3!

Making a waiting move. Black has to move either above or below the white king, where white will extract their king in the opposite direction.

4... ♕h1 5 ♕g3 ♕g2

Or 5... h2 6 ♕g4 ♕g2 7 ♕g5! and the kings are disconnected.

6 ♕g4 ♕g3

Again, 6... h2 7 ♕g5!

7 ♕h5+

Not 7 ♕g5+?? ♕f4! 8 ♕h5+ ♕g5! 9 ♖g1 h2! when all of a sudden it's a draw!

7... ♕g4 8 ♖xh3#

Example 14:

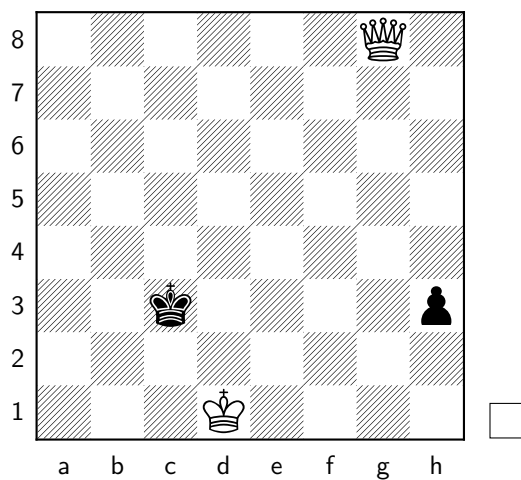


Diagram 33

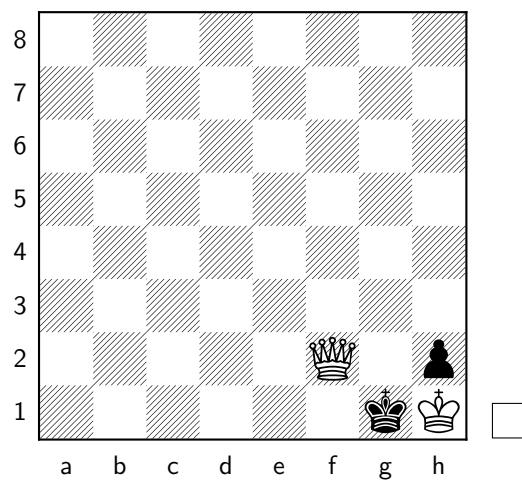


Diagram 34

(Diagram 33) Here we need to block the pawn with our king, but 1 ♔a8? h2 2 ♔h1 ♕d2 is a dead draw (see Example 11). Plus we don't have time to get the king in front. The only way to block with the king is to block with the queen on h2, giving the king an extra square.

1 ♔g3+! ♕d2 2 ♔h2!

Now we have all the time in the world to get our king to h1 and block the pawn with our king.

2... ♕e1 3 ♕e2 ♕f1 4 ♕f2 ♕g1 5 ♕g2 ♕f2 6 ♕h1+ ♕g1 7 ♔f2 h2 (Diagram 34)

Now the pawn is blocked with our king. What now? We use the same idea as Example 8!

8 ♔f1 ♕g2 9 ♔g1 ♕f3 10 ♔g2+

and wins.

### Example 15:

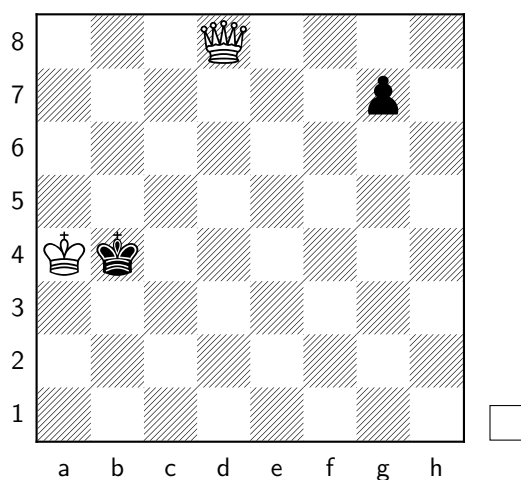


Diagram 35

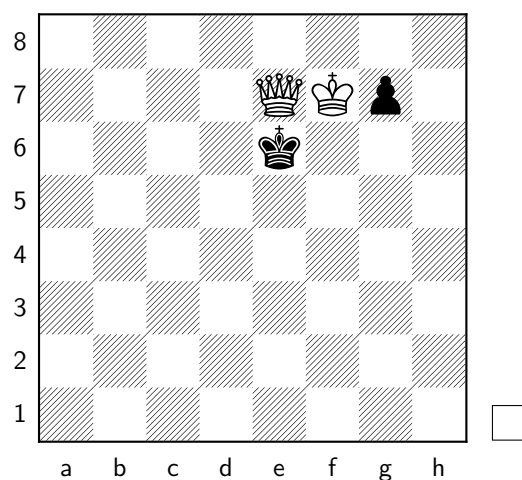


Diagram 36



(Diagram 35) Here we force the pawn to push using the same method as with opposing pawns, where black either has to get mated the same way or push the pawn, where the usual technique can be applied.

1 ♖e7

Setting up the gate.

1... ♘a5 2 ♘b4 ♘b5 3 ♘c4 ♘c5 4 ♘d4 ♘d5 5 ♘e5 ♘e6 6 ♘f5 ♘e5 7 ♘g6+ ♘f6 8 ♘f7 ♘e6 (Diagram 36) 9 ♘f8+! ♘f7 10 ♘e8!

Now any king move allows 11 ♜xg7#, so the pawn is forced to push.

10... g5 11 ♜e3 g4 12 ♜g3 ♘e7 13 ♘d7 ♘d6 14 ♘e6 ♘e5 15 ♘d5 ♘d4 16 ♘e4 ♘e3 17 ♘f3 ♘f2 18 ♘g2 ♘g1 (Diagram 37)

Now we use the normal strategy, however when we extract our king right we have to go up due to the edge of the board.

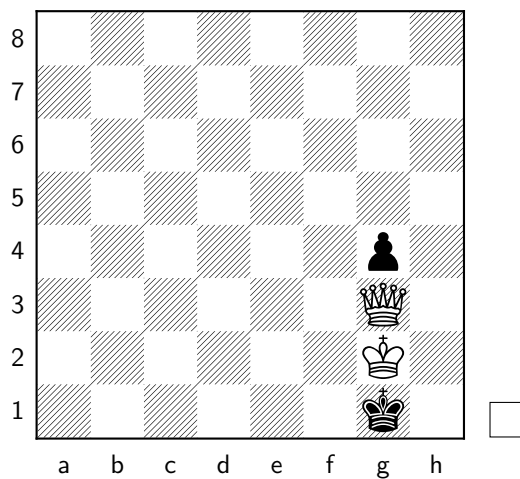


Diagram 37

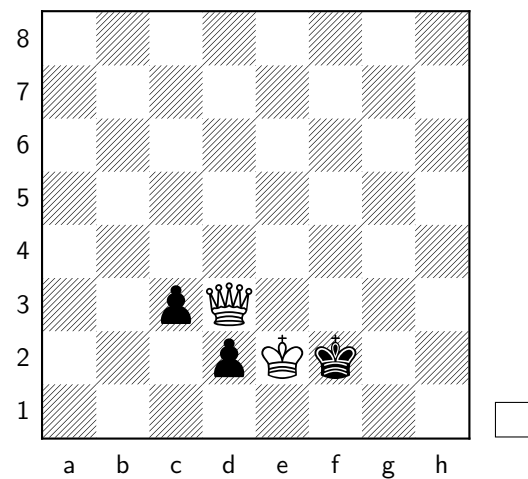


Diagram 38

19 ♜f4 g3 20 ♜g4 ♘f2 21 ♘h3 ♘g2 22 ♘h4 ♘h3 23 ♘h5+ ♘h4 24 ♜xg3#

### Example 16:

(Diagram 38) This position is completely drawn.

1 ♘d1 c2+! 2 ♘e2 c1♜ 3 ♘f3 ♜b2 4 ♜xd2

With a simple draw.

### Example 17:

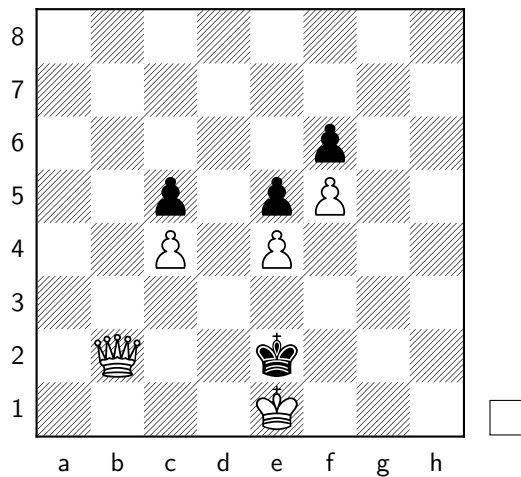


Diagram 39

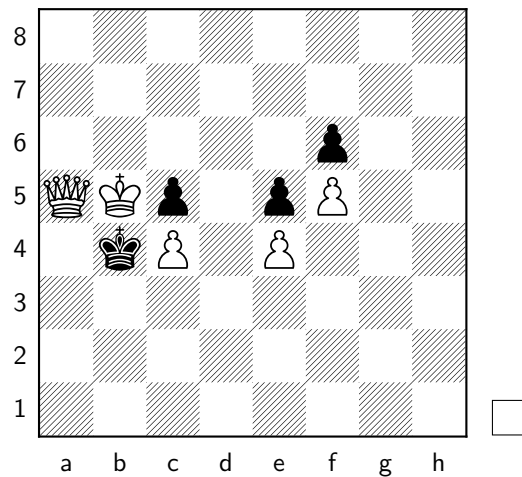


Diagram 40

(Diagram 39) With multiple opposing pawns the winning strategy is the same as with just 1 set of opposing pawns.

1 ♔a3 ♕d2 2 ♔a5 ♖e2 3 ♕d2 ♕d3 4 ♖c3 ♖c2 5 ♖b3 ♖b2 6 ♖a4 ♖a3 7 ♖b5 ♖b4 (Diagram 40) 8 ♖c6+ ♖b5 9 ♕d7+ ♖c6 10 ♔c5#

### Example 18:

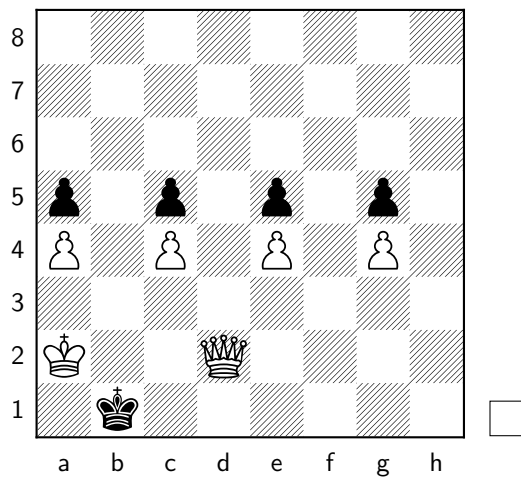


Diagram 41

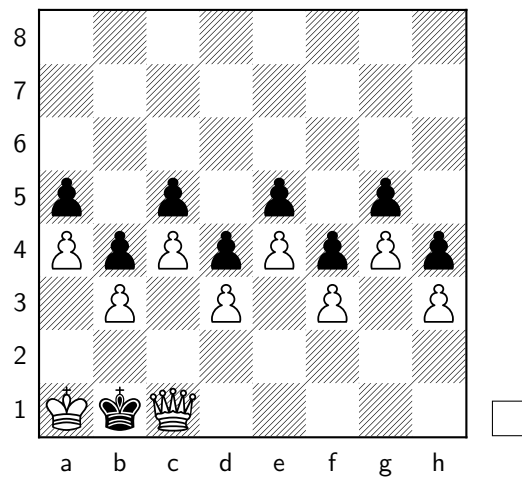


Diagram 42

(Diagram 41) While it is possible to win without losing the queen, the alternative (albeit longer) method is much simpler (and less risky!).

1 ♔d5 ♖b2 2 ♔xc5

With a simple win.

### Example 19:

(Diagram 41) The game can still be won without a queen sacrifice, and the solution is quite elegant: use the black king to allow us to pass through to the other side, where the win is

trivial.

1 ♖c2! ♕a1 2 ♜b2 ♜b1 3 ♜c3+ ♜b2 4 ♜d3+! ♜c3 5 ♜d4!

Gates don't always have to be with the opposing pawn! This gate setup is useful in a variety of ways to force the enemy king to a certain square.

5... ♜d3 6 ♜d5+ ♜d4

We have many ways to win here. One way is to utilise the fact the opposing king must move away next move with 7 ♖b2 ♜e3 8 ♖d4+!.

7 ♜e6+ ♜d5 8 ♖f2 ♜d6 9 ♖xc5# But this way is much more elegant (and faster!).

### Example 20:

(Diagram 42) Here we sacrifice the queen for a pawn break.

1 ♖e1 ♕a2 2 ♖xb4! ♜b1 3 b4! axb4 4 a5 ♕a2 5 a6 ♜b1 6 a7 ♕a2 7 a8♖ ♜b1 8 ♖a5 ♕a2 9 ♜b2 ♜b3 10 ♕a3 ♕a4 11 ♜b4 ♕a4 12 ♜b5 ♜b4 13 ♜c6+ ♜b5 14 ♜d7+ ♜c6 15 ♖xc6#

### Example 21:

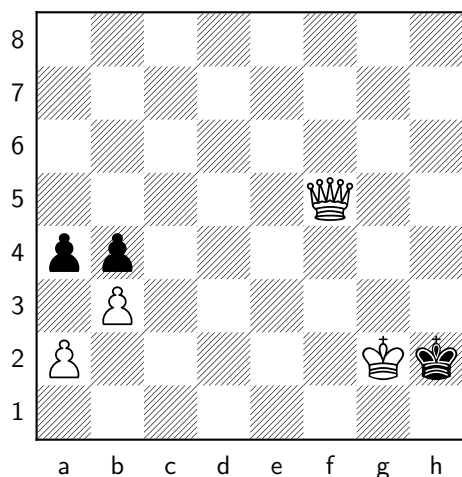


Diagram 43

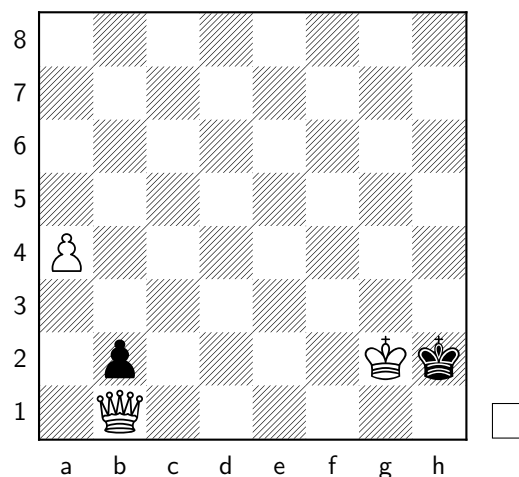


Diagram 44

(Diagram 43) If all the pawns are traded off, this position becomes a dead draw. However this is winning!

1 bxa4! b3 2 a4! b2 3 ♖b1! (Diagram 44)

Without the a-pawn this would be drawn (Example 11), but as white has an extra pawn, they win.

3... ♜g3 4 a5 ♜h2 5 a6 ♜g3 6 a7 ♜h2 7 a8♖ ♜g3

How do we win though? With a horizontal gate!

8 ♖b7 ♜h2 9 ♖b4! (Diagram 45)

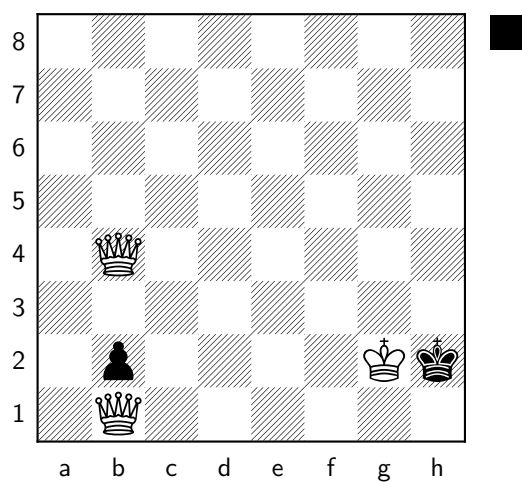


Diagram 45

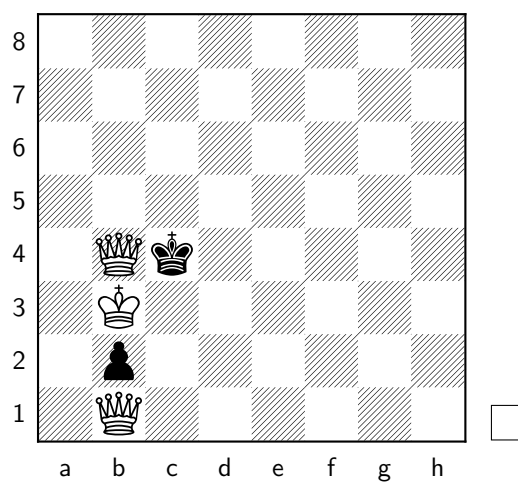


Diagram 46

Now we bring our king through the gate.

9... ♔g3 10 ♕f3 ♕f4 11 ♖e3 ♕f3 12 ♖d3 ♕e3 13 ♖c3 ♖d3 14 ♖b3 ♖c4 (Diagram 46) 15 ♖a3+ ♖b3 16 ♖a4 ♖a3 17 ♔1xb2#

## Chapter 3: Pawn Endgames

Armed with the knowledge of when an extra queen is enough to win, we now move to what came before: pawn endgames.

### Example 1:

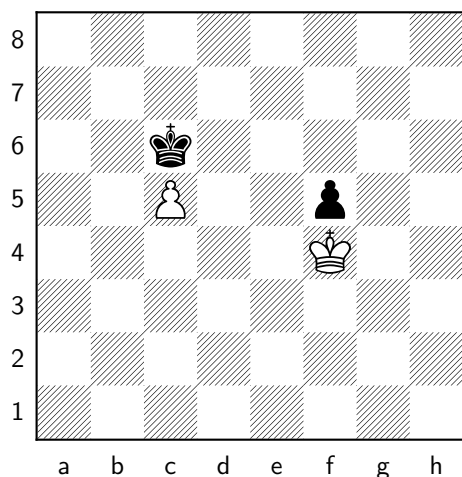


Diagram 1

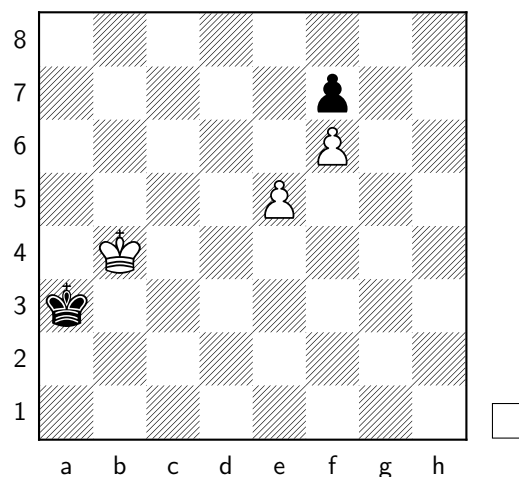


Diagram 2

(Diagram 1) Both kings are blocking the pawn, but white is closer to promotion. However, white must take care to avoid a loss!

1 ♔f3?? f4! forces white to give way again, when black becomes closer to promotion and will win the race.

1 ♔e5?? f4 (with the goal of connecting the kings) should be an obvious blunder by now: Example 12 from the previous chapter shows the winning technique for black.

The way to win is 1 ♔e3! (or 1 ♔g3! with the same result). Let's see how this plays out:

1 ♔e3! f4+ 2 ♔f3! and now black has to move: 2... ♔d7 3 c6+ ♔c7. Notice that there is a kind of “back and forth” game going on: white moves their pawn forward, then black, etc.

4 ♔g2 f3+ 5 ♔f2 ♔d8 6 c7+ ♔c8 7 ♔e1 f2+ 8 ♔f1 ♔d7 9 c1♔+ ♔e6 and the winning technique is identical to Example 12 from the previous chapter.

When you are up a pawn, you must take care not to trade all the pawns.

### Example 2:

(Diagram 2) Despite being up a pawn, this position is a draw. White has no way to promote without trading pawns.

1 ♔c5 ♔b4 2 ♔d6 ♔c5 3 ♔e7 (Diagram 3) 3... ♔d4!

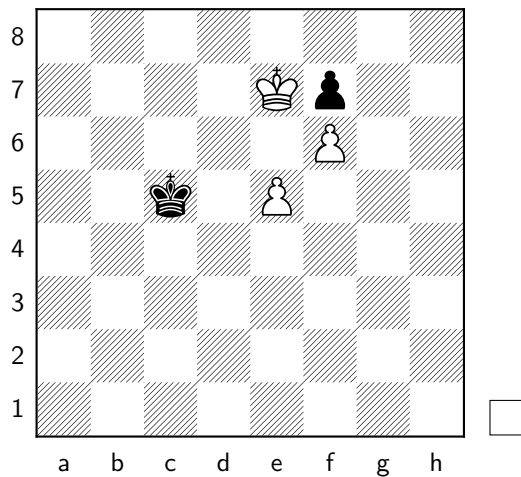


Diagram 3

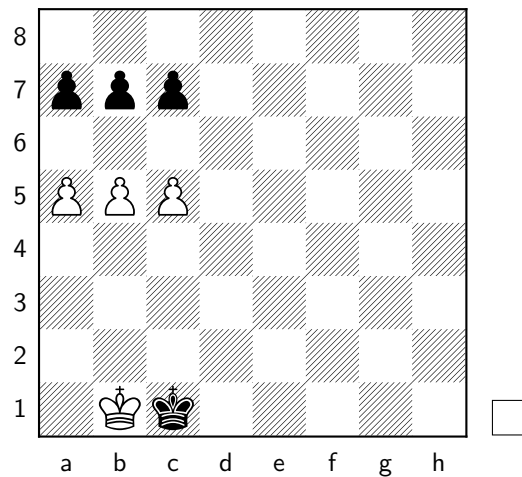


Diagram 4

Avoiding white's trap: **3... ♔d6 4 ♕f8+ ♕e7 5 e6!** when all of a sudden white is promoting!

**4 ♕g8 ♕e4 5 e6**

White can't make any progress, as black can remain on the 4th rank forever.

**5... fxe6 6 f7 ♕f5 7 f8♔+ ♕g6 8 ♔g7+ ♕f7** with a draw.

### Example 3:

(Diagram 4) This is a famous endgame in regular chess (without connected kings!). However, the result is very different!

**1 b6 cxb6?**

Indeed, the correct defense is not to take, but rather, **1... c6!** (or **1... a6!**), and white cannot make progress.

1. Any king move fails to **2... a6**, where since no pawns can be captured, progress is completely impossible.
2. **2 a6** is drawn, as black can keep moving their king forever. If you take, black will simply capture the other pawn, resulting in a draw.
3. **2 bxa7** and black can do whatever, as long as they remember to play **3 a6 bxa6!**, with a draw.

However, if black immediately plays **1... cxb6?**, the proximity of white's king allows a simple win.

**2 a6! bxa6**

Or **2...b5 3 c6 b4 4 c7 b3 5 c8♔ b2** and we win with the same method as Example 10 from the previous chapter.

**3 c6 a5 4 c7 a4 5 c8♔ a3 6 ♖a2+ ♗b2 7 ♔c3 ♖b1 8 ♖b3 ♗c2 9 ♖a4+!**

Not **9 ♗c4?! ♗d3** where no progress has been made.

**9...♗b3 10 ♖a5+ ♗b4 11 ♔xa3#**

## Pawn Structures

### Example 4:

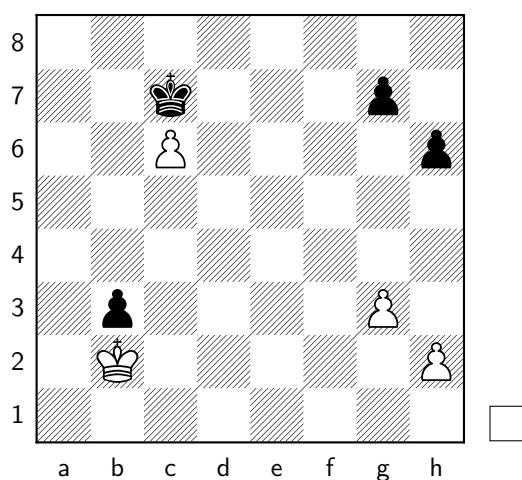


Diagram 5

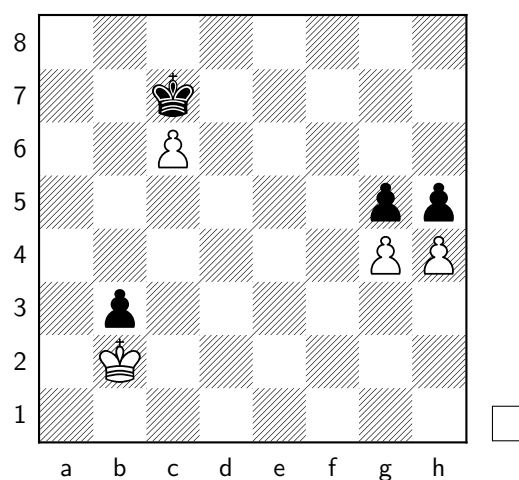


Diagram 6

(Diagram 5) Whoever is forced to move their king first, loses. White must take care to avoid a **mirror**. Only one move wins!

1. **1 h3? g6!** creates a mirror: the pawn structures are identical when reflected. This is now lost, e.g. **2 h4 h5 3 g4 h×g4 4 h5 g×h5** and white must move.
2. **1 h4? g5!** also loses, e.g. **2 h5 g4**, or **2 g4 h5 (Diagram 6)** creates a mirror, or **2 g4 h×g5 3 g5 h×g5** also wins for black.

The winning move is **1 g4!**, where white can create a mirror next move.

1. If **1...h5**, we have **2 g×h5 g5 3 h3!**, or **2...g6 3 h4!**
2. If **1...g5**, **2 h3!** creates a mirror.

In a sense, a pawn mirror is the atomic equivalent of opposition. Once all the pawns are traded, the position simplifies to Example 1.

# Chapter 4: Rook Endgames

Rook endgames share some similarities with queen endgames, but with one key difference: A rook and king cannot checkmate a lone king.

The following example showcases the key differences.

## Example 1:

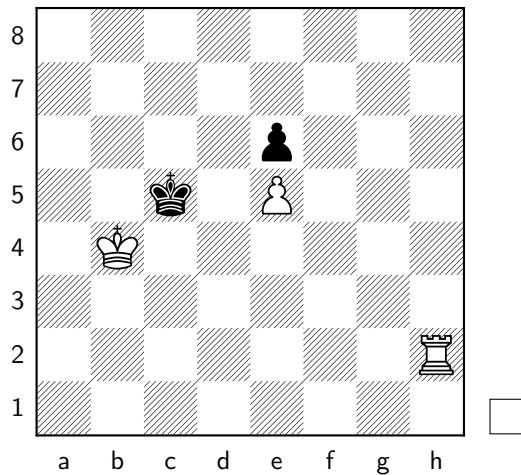


Diagram 1

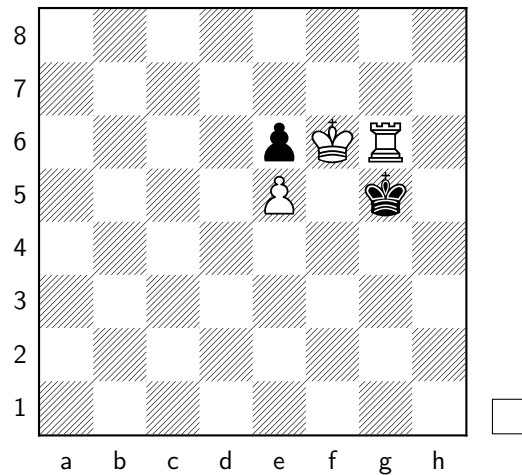


Diagram 2

(Diagram 1) Like normal, we first make a gate.

1 ♖g2 ♗b5 2 ♖g6 ♗c4 3 ♗c3 ♗d3 4 ♗d4 ♗e4 5 ♗e3 ♗f4 6 ♗f3 ♗e4 7 ♗g4 ♗f4 8 ♗g5 ♗g4 9 ♗f6+ ♗g5 (Diagram 2)

All well and good for now, but...

10 ♗e7+ ♗f4!

Utilising the fact that the rook cannot checkmate on its own, black avoids the swift loss after 10... ♗f6?! 11 ♗d8+! when 12 ♖xd6# is unstoppable. So while the same technique as with a queen could be applied to separate the kings, this alone isn't enough to checkmate.

However, white is still winning! As our pawn is on the fifth rank, we can sacrifice the rook when the kings are on opposite corners of the board. This allows us to promote and stop the kings from connecting in time.

But which corner should we go to? Consider the following line:

11 ♖g4+ ♗f3 12 ♗f8



We cannot force the king closer to the corner this move, so we use our move to get to the opposite corner.

12... ♖e3 13 ♜f4 ♖e2 14 ♜f3 ♖e1 15 ♜f2 ♖d1 16 ♜e2 ♖c1 17 ♜d2 ♖b1 18 ♜c2 ♖a1 19 ♖g8 ♖b1 20 ♖h8 ♖a1 (Diagram 3)

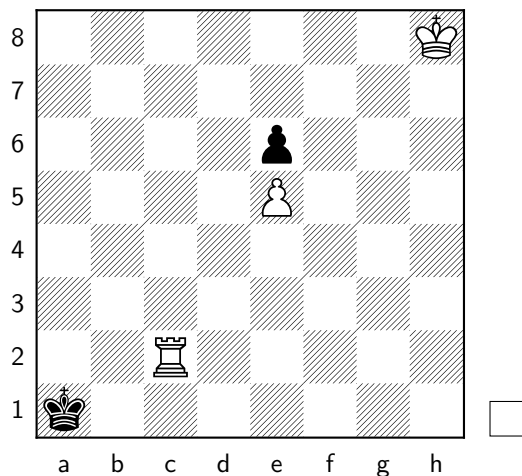


Diagram 3

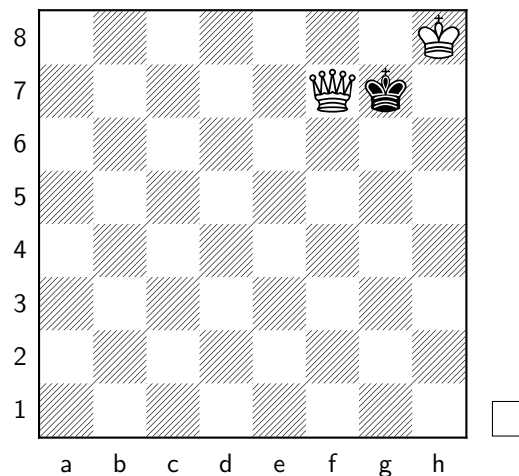


Diagram 4

And now trying 21 ♜c6 ♖b2! 22 ♜xe6 ♖c3 23 e6 ♖d4 24 e7 ♖e5 25 e8♙+ ♖f6 26 ♙f7+ ♖g7 (Diagram 4) is a draw.

So what went wrong? Is it just a draw? Not quite. Notice how if our rook was on b3 instead of c2, then 21 ♜b6 ♖a2 22 ♜xe6 ♖b3 23 e6 ♖c4 24 e7 ♖d5 25 e8♙ is easily winning. Black wasn't able to approach before we took the pawn.

The easiest way to win is to force their king to a8 (or h8), where we can take the e6 pawn from either angle.

From (Diagram 2) we can instead play

11 ♖e8

Our king is in a difficult spot, but we need to move it back to avoid the kings reconnecting.

11... ♖e4 12 ♜g4+ ♖d5 13 ♜d4+ ♖c6 14 ♖f8! Ensuring the kings don't reconnect.

14... ♖c7 15 ♜d6 ♖c8 16 ♜d7 ♖b8 17 ♜c7 ♖a8 18 ♖g7 ♖b8 19 ♖h6 ♖a8 20 ♖h5 ♖b8 21 ♖h4 ♖a8 22 ♖h3 ♖b8 23 ♖h2 ♖a8 24 ♖h1 ♖b8 (Diagram 5)

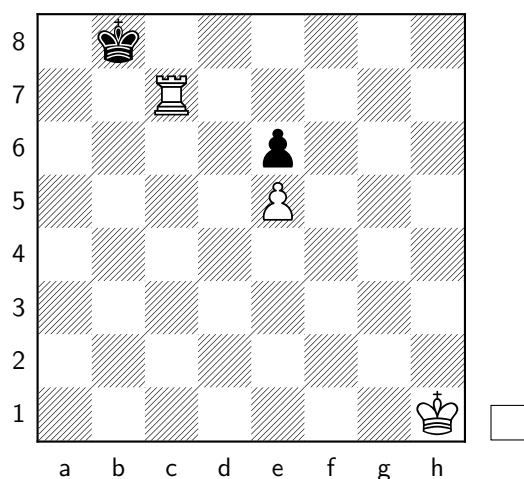


Diagram 5

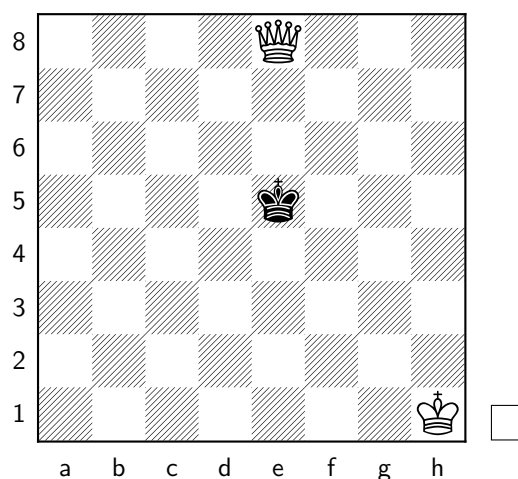


Diagram 6

Unlike before, we can now attack the pawn without the king approaching.

**Note:** Remember kings can move diagonally! When “distance” is defined as the least possible moves to get from one king to the other, a horizontal movement along the 8th rank doesn’t decrease this distance.

25 ♖e7 ♔c8 26 ♖xe6! ♔d7 27 e6+ ♔d6 28 e7 ♔e5 29 e8♔+ (Diagram 6) 29... ♔f4 30 ♔e3+! and wins.

## Opposing Pawns

(Diagram 7) shows the squares that the white pawn can be on such that white is winning in a King and Rook vs King with Opposing Pawns endgame.

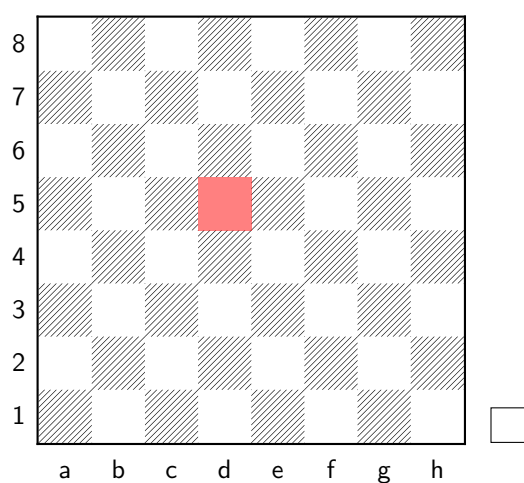


Diagram 7

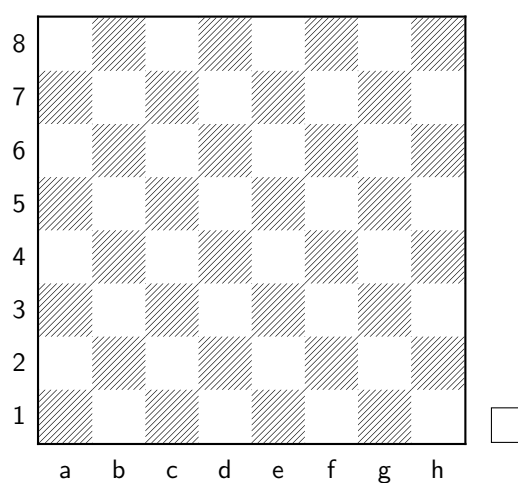


Diagram 8