Chapter 1

One, Two, Let's Sudoku

In This Chapter

- Tackling the basic sudoku rules
- Solving squares
- Figuring out your options

This chapter gives you everything you need to know to solve the three different types of puzzles in this book — 4×4, 6×6, and 9×9 puzzles.

Basic Rules for 4×4 Puzzles

The easiest sudoku are 4×4 puzzles. They are good for telling you about the basic sudoku rules. Figure 1 shows a 4×4 puzzle.

Each 4×4 puzzle has four *columns* (which go up and down) of four squares, four *rows* (which go across) of four squares, and four *boxes* of four squares (see Figure 2).

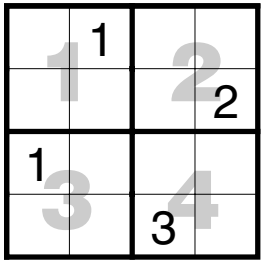

Figure 1: A basic sudoku grid.

All you have to remember to solve sudoku are these two simple things:

- You have to put all the numbers 1 through 4 in each column, each row, and each box.
- You can only use each number one time in each row, column, and box. Pretty obvious, huh?

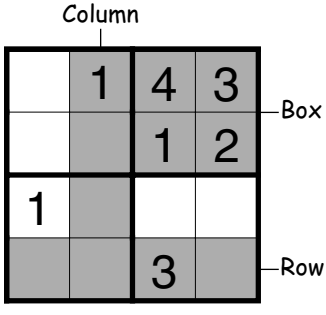

Figure 2: See the rows, columns, and boxes?

Each puzzle has a bunch of clue numbers to help you get started. All you have to do is to figure out which numbers are missing in each row, column, and box.

Take a look at the sudoku puzzle in Figure 3.

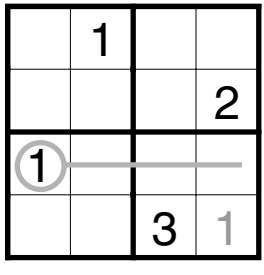

Figure 3: Solve for the number 1.

The circled number 1 in the third row stops any other 1 from going in that row. So if you want to put a 1 in box 4, there's only one square to put it in.

Now look at Figure 4. Can you see where a 1 should go in box 2? There's only one place for it to go — in the second row. Now, it is easy to see where the 3 will go in box 2 as well — in the last column.

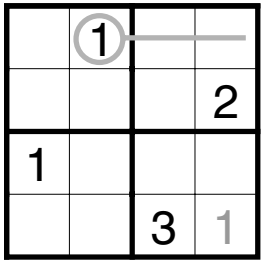

Figure 4: Solving box 2.

After you've solved one or two numbers, all the others will fall into place. See if you can solve the rest of the squares in the puzzle.

Just remember that if a number is in a row, it will also be in a column and a box, so it cannot be in any one of them again. Figure 5 shows you the completed puzzle.

2	1	4	3
3	4	1	2
1	3	2	4
4	2	3	1

Figure 5: Solved!

Step It Up with a 6×6 Puzzle

The next step up is 6×6 puzzles. You use the same rules as with 4×4 puzzles, but this time, you have to figure out where the numbers 1 to 6 go in each row, column, and box. Ready to solve one?

Check out the sudoku in Figure 6. You can see that there is already a 1 in the top row, so you know that there cannot be a 1 anywhere else in that row. There is also a 1 in the last column, stopping any more 1s in that column. Now you can see that there is only one square left where a 1 could go in box 2. There you are: You've solved your first number!

A tip about sudoku is that you are usually figuring out where a number cannot go rather than where it can go. But if you know where it can't go, you only have a few places left where it can go, and sometimes there is only one square left — which means that you have solved that square!

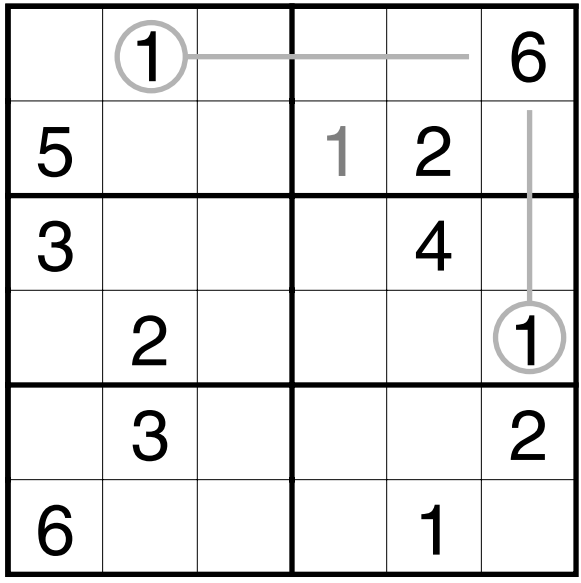

Figure 6: Solving for 1 in box 2.

Now try to find where the 1 goes in box 3 in Figure 7. The 1 in row 4 stops any 1s from appearing anywhere else in that row. So you know that the 1 in box 3 can't go in the bottom row. You can also use the 1 in row 1 again to say that no 1 can show up in the second column of box 3. This is great because it leaves only one square available for the 1 in that box. And another number bites the dust.

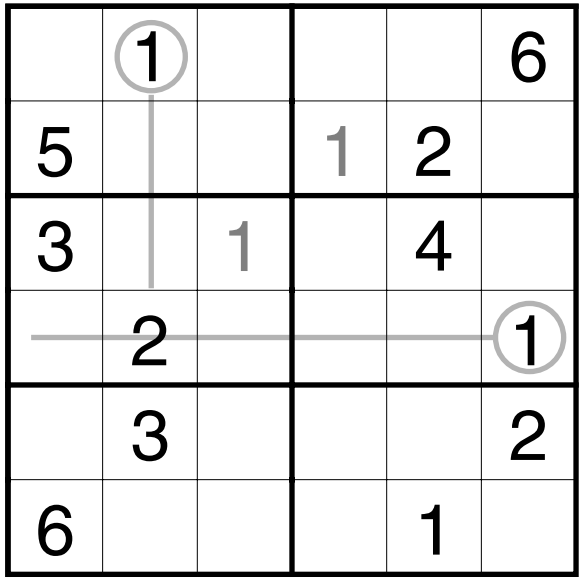

Figure 7: Solving your second number.

I can see another easy number to solve like this in Figure 8: The 2 in the last column stops another 2 appearing in that column, and the 2 in row 4 means that the only place for a 2 in box 4 is in row 3.

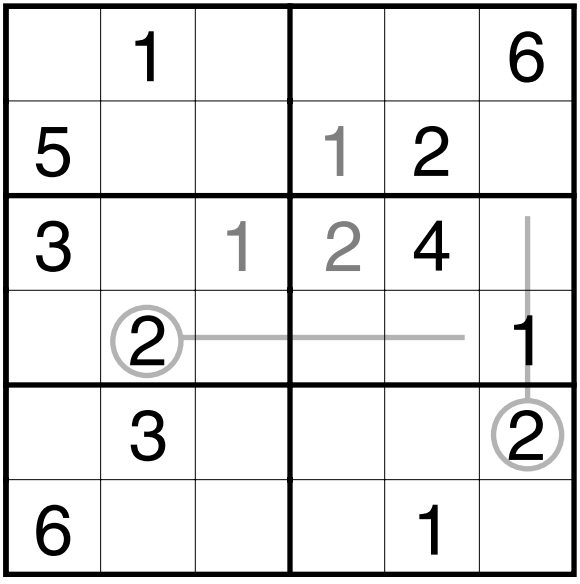

Figure 8: Taking care of the 2.

Now you've solved two squares in row 3 — it's starting to fill up. Only two more numbers are left to be solved: a 5 and a 6. Take a look at Figure 9. Hmm. You have two possible numbers for two different squares.

It helps to write these *possibles* in each square so that you remember what your choices are. But make sure you use a pencil

so that you can erase the possibles when you solve the square.

	1				6
5			1	2	
3	5 6	1	2	4	5 6
	2				1
	3				2
6				1	

Figure 9: Penciling in your possibles.

But now take a closer look at the puzzle in Figure 10. Can you see why the last square in row 3 cannot be a 6? Yes, there's already a 6 in that column. And if that last square can't be a 6, then you know it's a 5 because that's your only other option.

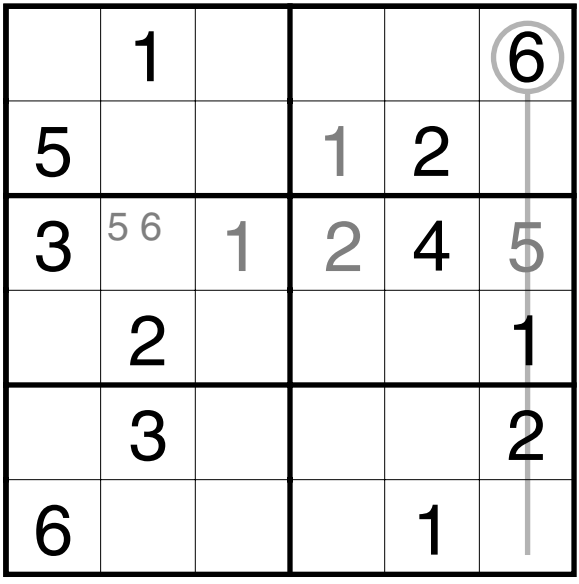

Figure 10: Getting rid of extra possibles.

It follows that if the last square is a 5, then the other empty square in that row is the only number left, which is a 6 (see Figure 11). You've now solved a whole row and some of the boxes are beginning to fill up!

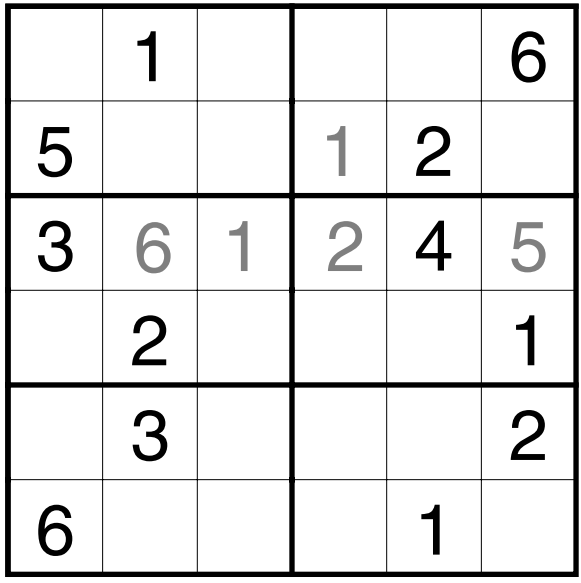

Figure 11: Finishing up a row.

In Figure 12, can you see where the 5 should go in box 3, now that you've figured out the 6 in that box? When you find the place for that 5, only one square in that box is left to solve, and you only have one number left in the set of six numbers: a 4.

No more hints from me now. There are plenty of clues for you to finish this sudoku pretty quickly on your own.

	1				6
5			1	2	
3	6	1	2	4	5
?	2	?			1
	3				2
6				1	

Figure 12: Wrapping up a box.

Hitting the Top: Solving 9×9 Puzzles

The most common sudoku size is the 9×9 puzzles. They use the same rules as 6×6s and 4×4s, just with the numbers 1 to 9.

Because 9×9 puzzles are bigger, one of the best ways to start solving them is to block off part of the puzzle so that you can focus on a smaller part. Then try to solve by comparing rows or columns to each other. Take a look at Figure 13. I covered the first six columns of the puzzle with a piece of paper so that I can focus on solving box 6.

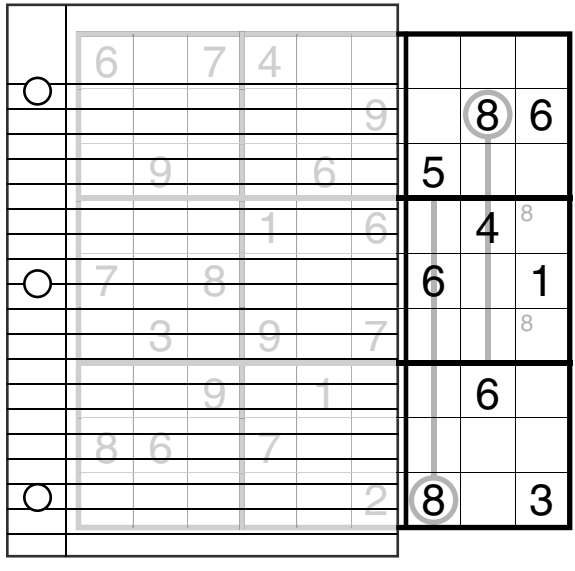

Figure 13: Cover part of the puzzle to help you focus.

Can you see the 8 in box 3 and the 8 in box 9? But there's no 8 in box 6. Hmm. Let's try to figure out where the 8 goes. The 8 in box 3

means that an 8 can't go anywhere else in column 8. The 8 in box 9 means that an 8 can't go anywhere in column 7. So now you know that the 8 in box 6 has to go in column 9. But you don't know yet which square the 8 goes in, so pencil in a little 8 in both squares to show that it could go either place.

Now try taking your sheet of paper away to see if you get any more clues from the rest of the puzzle. Figure 14 shows another 8 in row 5, but it doesn't help you figure out where the 8 goes in box 6.

So now what do you do? If you get stuck in a certain part of the puzzle, and you can't find any more obvious numbers to solve, look for *possibles*. These are all the numbers that could possibly go in a square.

You can find the possibles by looking at one square at a time and asking yourself "Can number 1 go here?" Then look around at all the other clue numbers and solved numbers to see if there's another 1 in the same row, column, or box as the square you're looking at. If not, then you know that 1 is a possible for that square and you can pencil a little 1 in the corner of the square. Then go to number 2 and ask, "Can number 2 also go in this square?"

Keep asking this question for all the numbers from 1 to 9 and then go on to the next square and ask the same questions again. Pretty soon you'll have all the possible solutions to a section penciled in. I've filled in all the possible numbers for box 6 in Figure 15.

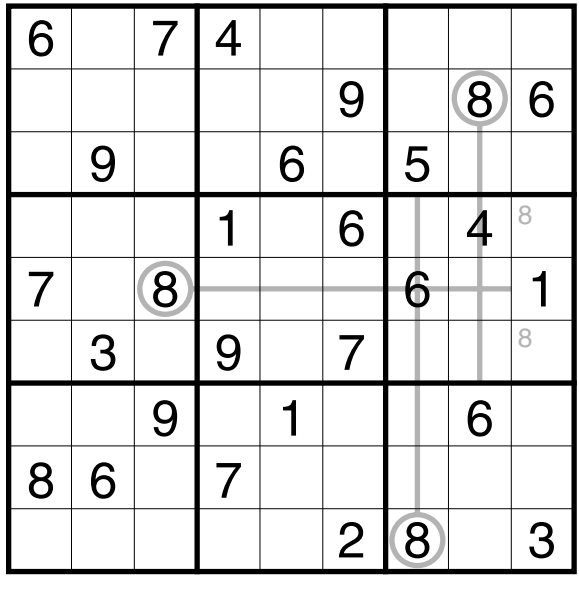

Figure 14: Pull the cover away to find more clues.

Sometimes you'll find that only a single number can go in the square — that means that's the answer to the square! Look at the bottom left hand square of box 6 in Figure 15,

and you can see that the only number that can go into that square is a 2. You didn't have any clues around in the rows or columns that showed you that 2 is the solution to that square. It was only by getting rid of all the other options that you discovered that 2 goes in this square. In sudoku talk, this discovery of a number is called a *lone number*.

6		7	4					
					9		8	6
	9			6		5		
			1		6	37	4	78
7		8				6	23 59	1
	3		9		7	(2)	25	258
		9		1			6	
8	6		7					
					2	8		3

Figure 15: Finding all the possibles.

But wait — solving the number 2 in box 6 lets you figure out some other things too. Because

you've already solved the 2 in box 6, no other 2 can go there, so you can cross out all the other possible 2s in the box. Figure 16 shows you the new box with the 2s gone. But wait, to the right of the solved 2, you can see that the 5 is now on its own — another lone number solved.

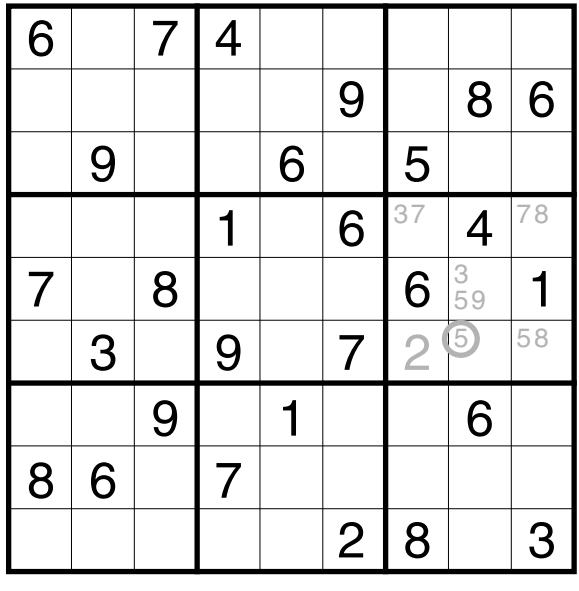

Figure 16: Getting rid of the extra 2s.

Do you know what that means? You can take out all the other possible 5s in the box and that leaves the 8 on its own in the bottom right square. (Take a look at Figure 17.) You know

what that means now, right? Take out all the other possible 8s, leaving a lone 7 in the top right square of box 6. You can keep going, getting rid of options to find new lone numbers. Before long, you'll have the whole box solved!

I hand the puzzle in Figure 17 over to you for solving as far as you can, using the techniques and strategies you've picked up so far.

6		7	4					
					9		8	6
	9			6		5		
			1		6	37	4	78
7		8				6	39	1
	3		9		7	2	5	(8)
		9		1			6	
8	6		7					
					2	8		3

Figure 17: Solve the rest of the puzzle yourself!