

fish. If there are only two such pairs, then it still works, as long as those two pairs don't share a cell.

Example 30

	1	3	5		8	9		
					9			
2		8		4				
	6					4		5
		4				3		
1		5					8	
				1		8		6
			2					
		2	8		4	7	9	

We get to the turbot fish at this point:

Example 30-1

47	1	3	5	267	8	9	467	247
457	457	6	137	237	9	12	347	8
2	9	8	1367	4	1367	16	5	37
3789	6	79	1379	3789	2	4	17	5
789	278	4	1679	56789	1567	3	167	279
1	237	5	4	3679	367	26	8	279
34579	3457	79	379	1	357	8	2	6
6789	78	1	2	679	67	5	34	34
356	35	2	8	356	4	7	9	1

There are two turbot fish situations here:

1) Cells 34, 37, 54, 58, and 67 form a turbot fish. (If you draw a line connecting cell 54 to 34 to 37 to 67 to 58 and back to 54 you get something resembling a fish swimming up and to the left, which is where the name comes from.) The pairs of cells in this turbot fish are 34 and 37, 37 and 67, 67 and 58, 58 and 54, and 54 and 34. The pairs 37 and 67, 67 and 58, and 54 and 34 are the only cells in their column or box

that can have a 6, so we've found a turbot fish. If cell 37 is a 6, then cell 34 is *not* a 6, cell 67 is *not* a 6, cell 58 is a 6, and cell 54 is *not* a 6. This is an impossibility, because now there is no place for a 6 anywhere in column 4. So we can exclude the 6 from cell 37, which means that cell 67 must be a 6.

2) Cells 18, 34, 37, 54, and 58 form another turbot fish. (This one looks nothing like a fish.) Only the pairs in the rows have other places where the 6 can go, so we have three sides with the necessary trait, enough for it to work. If cell 58 is a 6, then cell 54 is *not* a 6, cell 18 is *not* a 6, cell 37 is a 6, and cell 34 is *not* a 6. This is an impossibility, because now there is no place for a 6 anywhere in column 4. So we can exclude the 6 from cell 58, making cell 18 a 6.

Either one of these two conclusions that can be made using turbot fish allows you to reach the answer swimmingly.

Example 30 Answer

7	1	3	5	2	8	9	6	4
5	4	6	1	7	9	2	3	8
2	9	8	3	4	6	1	5	7
3	6	9	7	8	2	4	1	5
8	2	4	6	5	1	3	7	9
1	7	5	4	9	3	6	8	2
4	3	7	9	1	5	8	2	6
9	8	1	2	6	7	5	4	3
6	5	2	8	3	4	7	9	1

OTHER GRID COLORING

In this grid, we'll eventually take a close look at the 8's.

Example 31

		9					4	
	7	2		5	3			
		6		4			3	7
				9	6			1
			1		4			
1			5	7				
7	2			1		4		
			6	3		7	8	
	6					9		

We hit the wall at this point:

Example 31-1

358	38	9	7	6	1	2	4	58
4	7	2	8	5	3	1	69	69
58	1	6	2	4	9	58	3	7
2	58	4	3	9	6	58	7	1
6	589	7	1	28	4	3	259	589
1	389	38	5	7	28	6	29	4
7	2	358	9	1	58	4	56	356
9	4	1	6	3	25	7	8	25
38	6	358	4	28	7	9	1	235

If cell 12 is an 8, cell 19 is *not* an 8, cell 63 is an 8, cell 66 is *not* an 8, cell 55 is an 8, and cell 59 is *not* an 8. This is an impossibility, because now there is no place for an 8 anywhere in column 9. So we can exclude the 8 from cell 12, which means cell 12 has to be a 3. After that 3 is placed, the puzzle is a piece of cake.

Example 31 Answer

5	3	9	7	6	1	2	4	8
4	7	2	8	5	3	1	9	6
8	1	6	2	4	9	5	3	7
2	5	4	3	9	6	8	7	1
6	8	7	1	2	4	3	5	9
1	9	3	5	7	8	6	2	4
7	2	8	9	1	5	4	6	3
9	4	1	6	3	2	7	8	5
3	6	5	4	8	7	9	1	2

The puzzles on the next two pages require the techniques of XY-wing, XYZ-wing, and/or turbot fish, except for the final puzzle (#96), which uses a short grid coloring that isn't a turbot fish.

8 5

		7	6				2
5					4		
4		9	8				7
6	4						
		8				9	
							5 8
	1				9	8	2
			4				1
	2				3	4	

8 6

	4		9			2	
	6	7					
				3	6		
	5	3	2			4	7
8		4			9	1	6
			4	8			
						3	5
		1			5		9

8 7

4					8		7
	8						
3			1	9	5		
	2	5		1		8	
		1		3		5	6
			8	4	9		2
						5	
2			7				3

8 8

5		1		2			
			9	6		3	
	3		4			2	
2		3					1
6		4				8	7
	7					6	2
		6			5		2
		2		4	9		
				3		7	9

8 9

		1	5	9		6	
5		6		1			
	4						1
	9					2	7
6				2			1
	8	3					5
	6						8
				5		7	2
		2		7	4	3	

9 0

				9			2
7	1	9					
			5		7		
9	8		1	2			3
	3						5
	4			8	3		2
			6		4		
						7	8
2				3			

9 1

4					9	5	3	7
8	5					4		
		7						2
7				2		6		
			6	4	7			
		2		1				9
9						2		
		3					7	8
2	7	8	5					6

9 2

2	7			9				
8			2				9	
	6		3			4		
					5			3
	8	3				7	5	
1			4					
		2			9		6	
	4				8			2
				2			3	5

9 3

	1			8			7	9
3	9							
6			9	7		1		
		1			7			
4				6				7
			3			5		
		6		9	4			8
							5	2
8	5			3			9	

9 4

		7			9			6
	5				8			
					3	4	7	
1					6	8	4	5
4	8	2	9					1
	7	4	6					
			3				2	
5			8			9		

9 5

		3			4	2	9	
				7	9	3		
			8	3				1
	4		6	9				
3	9						8	2
				8	2		4	
7				5	1			
		1	3	6				
	3	6	9			1		

9 6

					7			
			5				2	9
4				3		7		6
	9				4		3	5
	2		6		3		9	
3	1		7				4	
2		6		7				8
7	4				5			
				2				