

Rank Up 20 - Palindromes – Full Solution Guide

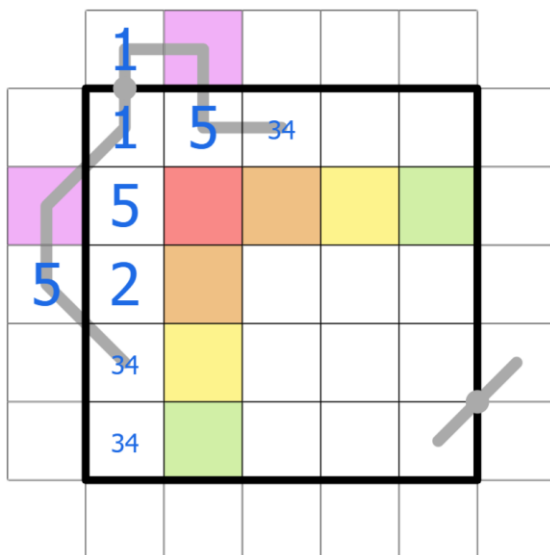
This is a full solution guide to my puzzle *Rank Up 20 - Palindromes*, and so spoilers are ahead.

Rules

- **Latin Square:** Place the digits 1 to 5 once each in every row and column
- **Palindrome:** Values along a grey palindrome line read the same forwards as backwards
- **Full Rank:** A value in an external cell represents the rank of the number formed by reading the digits in that row or column from that direction, where (1) is the lowest such row or column and (20) is the highest
 - N.B. If two ranks are tied, the value in both external cells is the lower of the two ranks being shared. For example, if the lowest four ranks are "12345", "21345", "21345" and "31245", the values in the relevant external cells would be (1), (2), (2) and (4) respectively.

Solve Path

- C1 rank from the top starts with the same digit as its rank. The only way this works is for this to be rank 1 starting with a 1
- R0C2 and R2C0 are the same rank, which means R2 and C2 contain the same digits in the same order
- R3C0 must be capable of being a rank and a digit in the puzzle. This can only be rank 5 which is the lowest number starting with a 2
- As C1 is lower or equal to the number for R1, then both R2C1 and R1C2 must be 5s



- R4 from the right is rank no higher than 5. If it were a joint 5 with R3 then the same digit would be in R3C3 and R4C3. Hence R4C5 is a 1, and R5C5 is from 234
- 1 in R5 has to be followed by a 5, so R5C4 is 1
- Places the remaining 5s

	1				
	1	5	34	234	234
	5	1234	134	234	234
5	2	134	134	34	5
	34	234	234	5	1
	34	234	5	1	234

- Places 2 in C3
- R4C2 has to be higher than R4C1 to ensure that R4 from the right is higher than C1 from the top
- Now the grid almost resolves by sudoku

	1				
	1	5	3	2	4
	5	23	1	4	23
5	2	1	4	3	5
	3	4	2	5	1
	4	23	5	1	23

- R4 can only be rank 2 as it is higher then C1 but lower than R1 and C4, hence red is a 2

