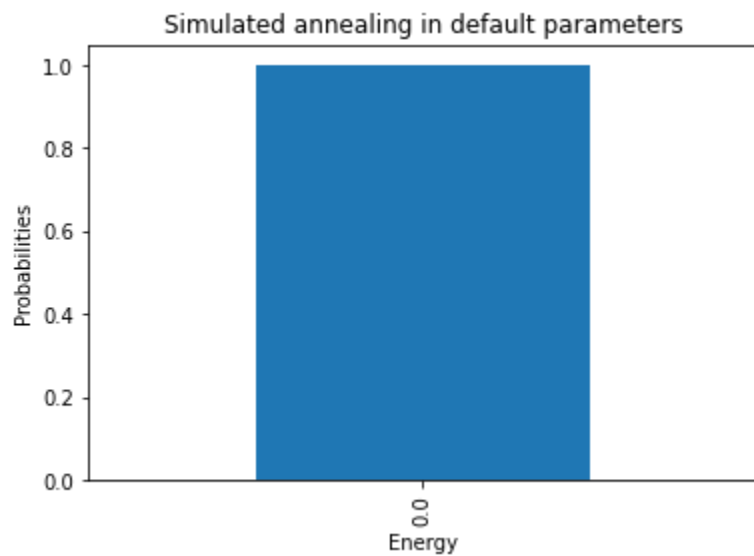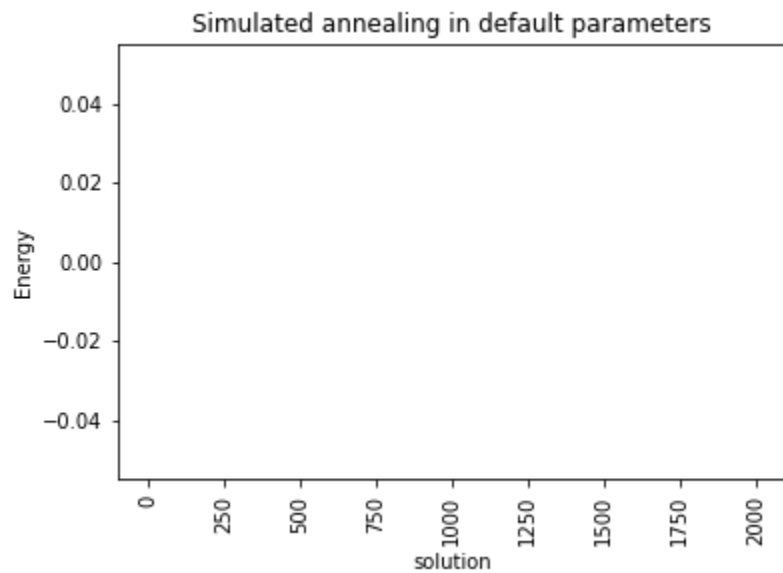# Solving Sudoku with Quantum Annealing – Test Cases Output

4 by 4 Sudoku (2000 reads)

```
minimum energy: 0.0
```
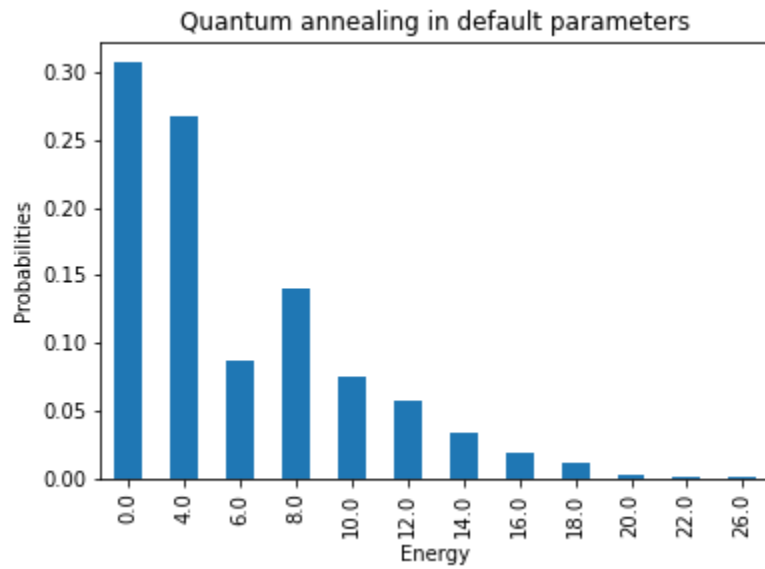


```
minimum energy: 0.0
Number of logical variables: 56
Number of physical qubits used in embedding: 187
minimum energy: 0.0
```
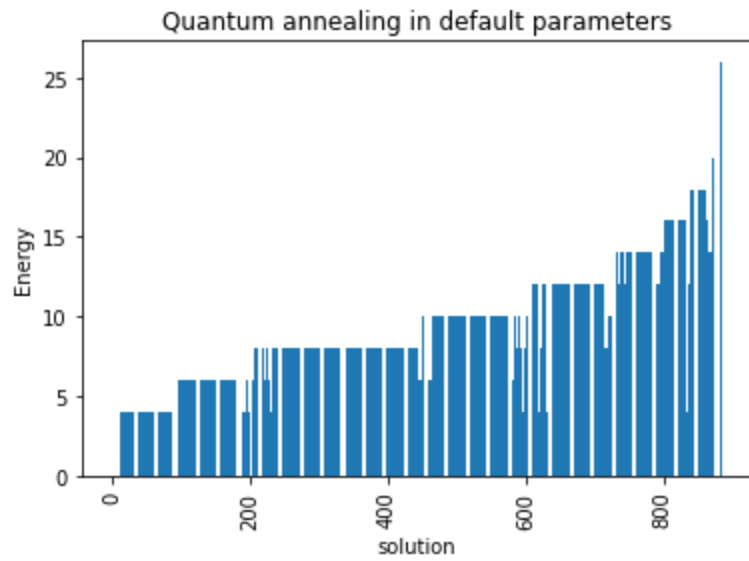
Quantum annealing in default parameters

Quantum annealing in default parameters


```
minimum energy: 0.0
1 4 2 3
2 3 1 4
3 1 4 2
4 2 3 1
The solution is correct
CPU Runtime (seconds) 14.144272804260254
```
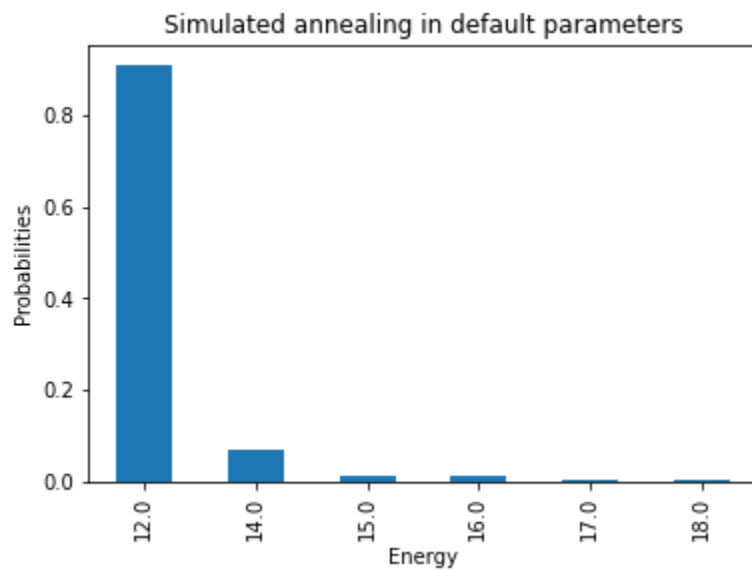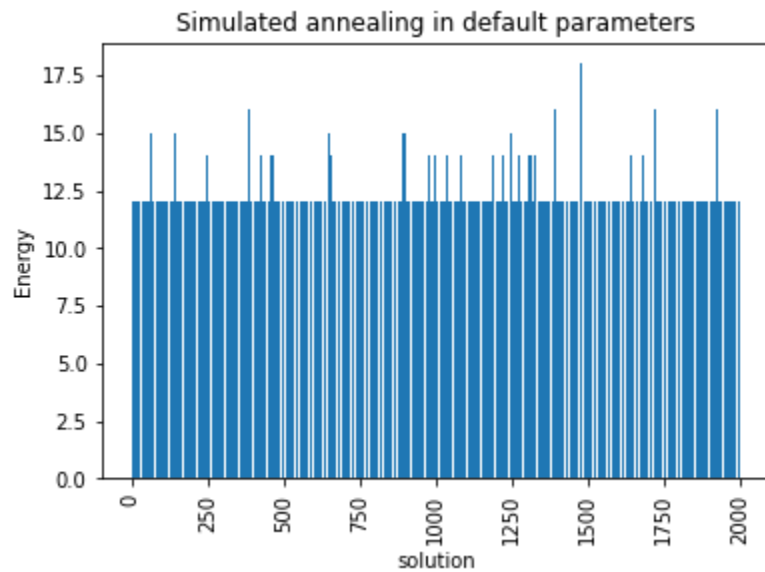
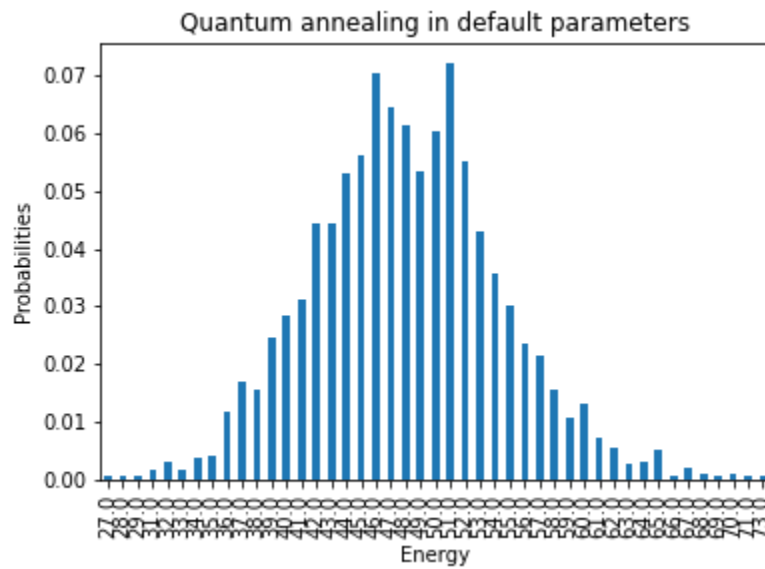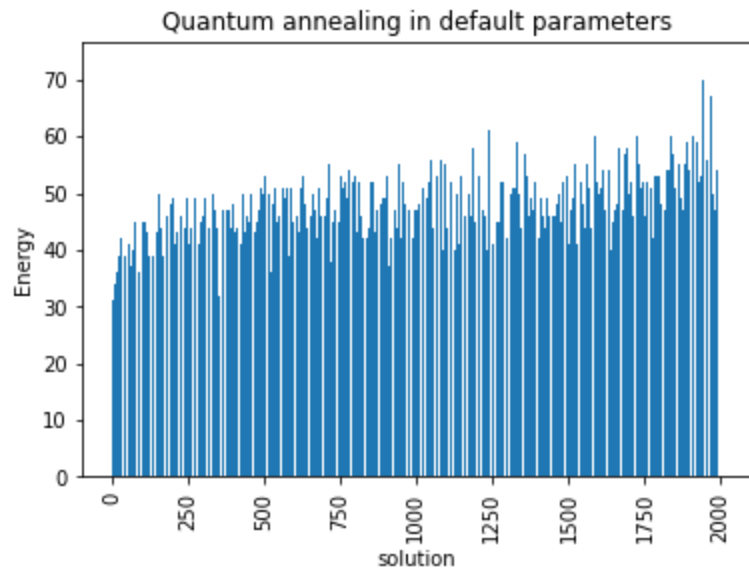# 6 by 6 Sudoku Problem 1 (2000 reads)

minimum energy: 12.0

minimum energy: 12.0
Number of logical variables: 196
Number of physical qubits used in embedding: 2272
minimum energy: 27.0

Quantum annealing in default parameters

Quantum annealing in default parameters

```
minimum energy: 27.0
4 2 3 6 1 6
5 6 1 3 2 4
6 5 4 2 3 3
2 3 6 4 5 1
1 1 2 5 4 5
3 4 5 1 6 0
Error in row:  [4, 2, 3, 6, 1, 6]
The solution is incorrect
CPU Runtime (seconds) 75.11728620529175
```
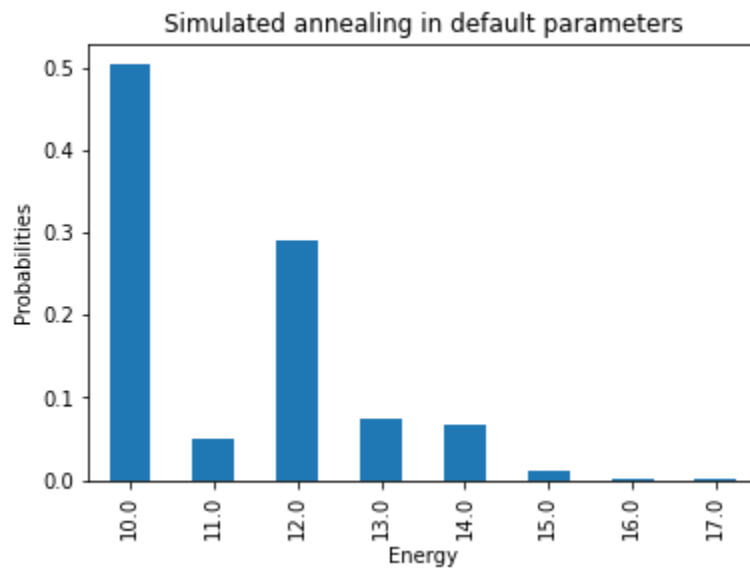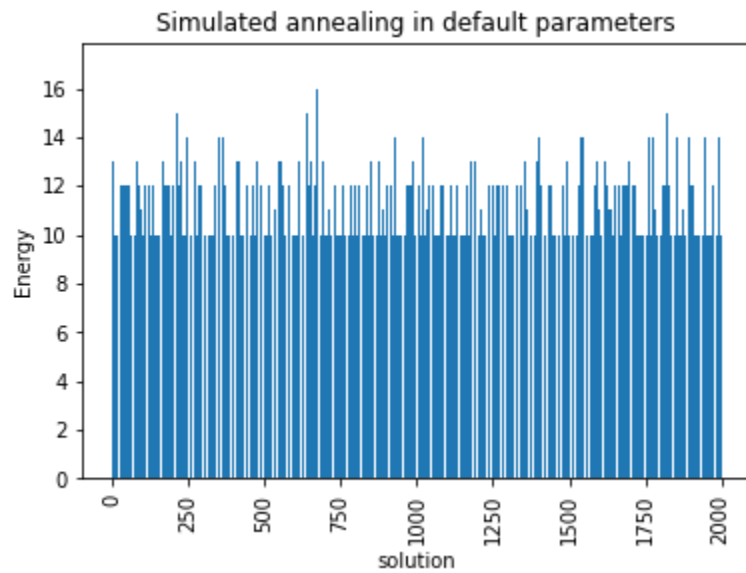
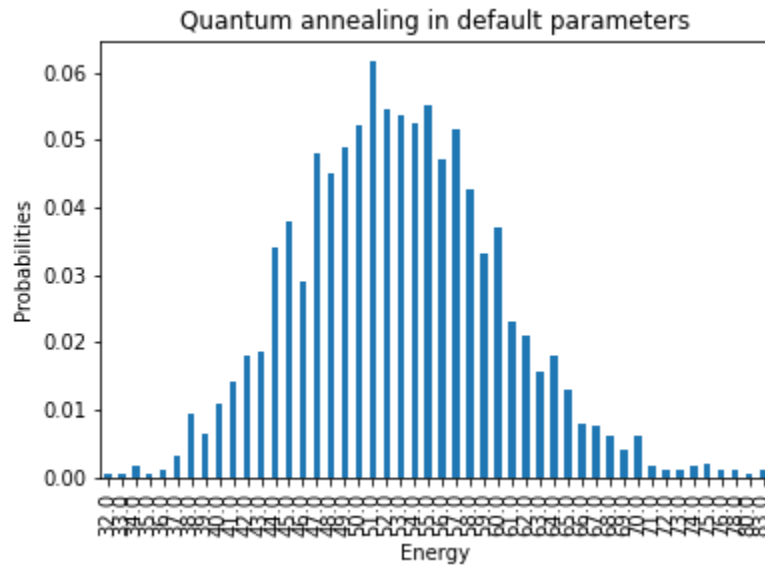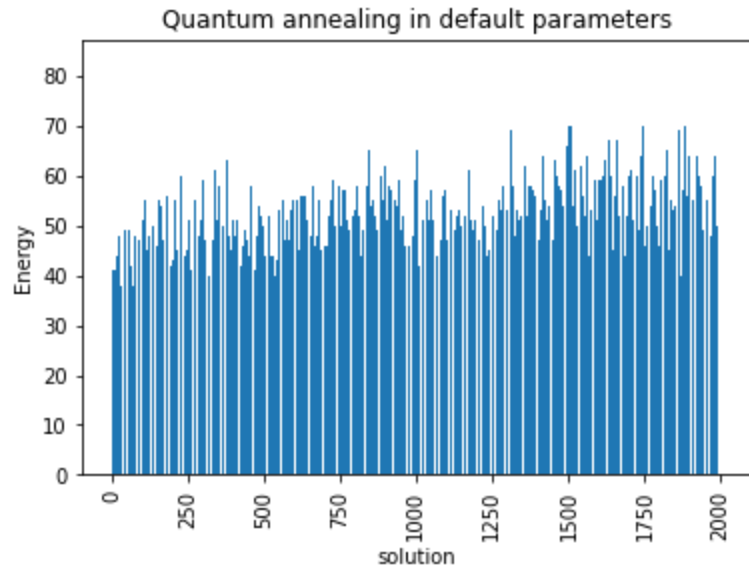# 6 by 6 Sudoku Problem 2 (2000 reads)

minimum energy: 10.0

minimum energy: 10.0
Number of logical variables: 200
Number of physical qubits used in embedding: 2384
minimum energy: 32.0

Quantum annealing in default parameters

Quantum annealing in default parameters

```
minimum energy: 32.0
2 3 0 4 1 5
0 5 3 6 2 4
3 2 5 6 4 1
1 4 1 2 6 3
0 3 2 3 4 5
6 1 0 4 3 2
Error in row:  [2, 3, 0, 4, 1, 5]
The solution is incorrect
CPU Runtime (seconds) 83.70589995384216
```

9 by 9 Sudoku Problem 1 – Hardest Sudoku Problem (500 reads)

Even after running the program for 10 minutes, the solver is still unable to solve the problem, so I paused it for now.