

All solutions to the problem of eight queens

The *eight queens problem* was apparently first proposed by Max Bezzel in the *Berliner Schachzeitung* (1848) and first fully solved by Franz Nauck in *Leipziger Illustrierte Zeitung* (1850). It asks in how many ways eight queens can be placed on a chess board so that no two attack each other. Each of the twelve solutions shown on this page represents an equivalence class of solutions resulting from each other by rotating the chessboard and/or flipping it along one of its axes of symmetry. Each of the equivalence classes represented by Solutions 1,2,...,11 consists of eight solutions. Since Solution 12 is invariant under rotating the chessboard by 180 degrees, its equivalence class consists of only four solutions.

Altogether, this page represents 92 solutions to the problem of eight queens; brute force shows that no other solutions exist.

Q							
			Q				
						Q	
			Q				
	Q						
					Q		
	Q						
		Q					

Solution 1

Q							
			Q				
						Q	
	Q						
					Q		
		Q					
Q							
		Q					

Solution 2

	Q						
			Q				
		Q					
				Q			
						Q	
	Q						
					Q		
			Q				

Solution 3

	Q						
			Q				
						Q	
Q							
	Q						
					Q		
			Q				
		Q					

	Q						
			Q				
						Q	
		Q					
Q							
					Q		
			Q				
	Q						

	Q						
				Q			
Q							
						Q	
			Q				
							Q
	Q						
			Q				

Solution 4

	Q					
				Q		
						Q
	Q					
Q						
		Q				
						Q
			Q			

Solution 5

	Q					
					Q	
	Q					
				Q		
						Q
			Q			
Q						
		Q				

Solution 6

	Q					
						Q
			Q			
						Q
Q						
		Q				
						Q
	Q					

Solution 7

	Q					
		Q				
						Q
		Q				
Q						
					Q	
	Q					
				Q		

Solution 8

	Q					
				Q		
Q						
			Q			
						Q
Q						
						Q
		Q				

Solution 9

	Q					
			Q			
	Q					
						Q
Q						
						Q
		Q				
				Q		

Solution 10

	Q					
		Q				
						Q
		Q				
Q						
					Q	
	Q					
				Q		

Solution 11

	Q					
				Q		
Q						
			Q			
						Q
Q						
						Q
		Q				

Solution 12

	Q					
			Q			
	Q					
						Q
Q						
						Q
		Q				
				Q		