

Original matrix

compute reduced row echelon form (without column pivots)

columns	row 1	row 2	row 3
1	1	2	1
2	2	1	2
3	1	2	1

Check

add the zero rows

columns	row 1	row 2	row 3	row 4	row 5	row 6
1	1	2	1			
2	2	1	2			
				1		
					1	
						1
4				1		
					1	
						1
7				1		
					1	
						1