



matrix

RESHISH

Matrix Calculator

Graphing Calculator

Gauss-Jordan Elimination

Cramer's Rule

Inverse Matrix Method

Matrix Rank

Determinant

Inverse Matrix

Matrix Power

Matrix Transpose

Matrix Multiplication

Matrix Addition/Subtraction

Result of matrix in



Your matrix

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	1	1	1	1	1	1	1
2	1	-1	1	-1	1	-1	1	-1
3	1	1	-1	-1	1	1	-1	-1
4	1	-1	-1	1	1	-1	-1	1
5	1	1	1	1	-1	-1	-1	-1
6	1	-1	1	-1	-1	1	-1	1
7	1	1	-1	-1	-1	-1	1	1
8	1	-1	-1	1	-1	1	1	-1

Determinant is not zero, therefore inverse matrix exists

Write the augmented matrix

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
2	1	-1	1	-1	1	-1	1	-1	0	1	0	0	0	0	0	0
3	1	1	-1	-1	1	1	-1	-1	0	0	1	0	0	0	0	0
4	1	-1	-1	1	1	-1	-1	1	0	0	0	1	0	0	0	0
5	1	1	1	1	-1	-1	-1	-1	0	0	0	0	1	0	0	0
6	1	-1	1	-1	-1	1	-1	1	0	0	0	0	0	1	0	0
7	1	1	-1	-1	-1	-1	1	1	0	0	0	0	0	0	1	0
8	1	-1	-1	1	-1	1	1	-1	0	0	0	0	0	0	0	1

Find the pivot in the 1st column in the 1st row

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
2	1	-1	1	-1	1	-1	1	-1	0	1	0	0	0	0	0	0
3	1	1	-1	-1	1	1	-1	-1	0	0	1	0	0	0	0	0
4	1	-1	-1	1	1	-1	-1	1	0	0	0	1	0	0	0	0
5	1	1	1	1	-1	-1	-1	-1	0	0	0	0	1	0	0	0

6	1	-1	1	-1	-1	1	-1	1	0	0	0	0	0	1	0	0
7	1	1	-1	-1	-1	-1	1	1	0	0	0	0	0	0	1	0
8	1	-1	-1	1	-1	1	1	-1	0	0	0	0	0	0	0	1

Eliminate the 1st column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	1	1	1	1	1	1	1	-1	0	0	0	0	0	0	0
2	0	-2	0	-2	0	-2	0	-2	-1	1	0	0	0	0	0	0
3	0	0	-2	-2	0	0	-2	-2	-1	0	1	0	0	0	0	0
4	0	-2	-2	0	0	-2	-2	0	-1	0	0	1	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	-2	0	-2	-2	0	-2	0	-1	0	0	0	0	1	0	0
7	0	0	-2	-2	-2	-2	0	0	-1	0	0	0	0	0	1	0
8	0	-2	-2	0	-2	0	0	-2	-1	0	0	0	0	0	0	1

Make the pivot in the 2nd column by dividing the 2nd row by -2

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
2	0	1	0	1	0	1	0	1	0.5	-0.5	0	0	0	0	0	0
3	0	0	-2	-2	0	0	-2	-2	-1	0	1	0	0	0	0	0
4	0	-2	-2	0	0	-2	-2	0	-1	0	0	1	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	-2	0	-2	-2	0	-2	0	-1	0	0	0	0	1	0	0
7	0	0	-2	-2	-2	-2	0	0	-1	0	0	0	0	0	1	0
8	0	-2	-2	0	-2	0	0	-2	-1	0	0	0	0	0	0	1

Eliminate the 2nd column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	1	0	1	0	1	0	0.5	0.5	0	0	0	0	0	0
2	0	1	0	1	0	1	0	1	0.5	-0.5	0	0	0	0	0	0
3	0	0	-2	-2	0	0	-2	-2	-1	0	1	0	0	0	0	0
4	0	0	-2	2	0	0	-2	2	0	-1	0	1	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	-2	-2	-2	-2	0	0	-1	0	0	0	0	0	1	0
8	0	0	-2	2	-2	2	0	0	0	-1	0	0	0	0	0	1

Make the pivot in the 3rd column by dividing the 3rd row by -2

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	1	0	1	0	1	0	0.5	0.5	0	0	0	0	0	0
2	0	1	0	1	0	1	0	1	0.5	-0.5	0	0	0	0	0	0

3	0	0	1	1	0	0	1	1	0.5	0	-0.5	0	0	0	0	0
4	0	0	-2	2	0	0	-2	2	0	-1	0	1	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	-2	-2	-2	-2	0	0	-1	0	0	0	0	1	0	0
8	0	0	-2	2	-2	2	0	0	0	-1	0	0	0	0	0	1

Eliminate the 3rd column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	-1	1	0	0	-1	0	0.5	0.5	0	0	0	0	0
2	0	1	0	1	0	1	0	1	0.5	-0.5	0	0	0	0	0	0
3	0	0	1	1	0	0	1	1	0.5	0	-0.5	0	0	0	0	0
4	0	0	0	4	0	0	0	4	1	-1	-1	1	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	0	0	-2	-2	2	2	0	0	-1	0	0	0	1	0
8	0	0	0	4	-2	2	2	2	1	-1	-1	0	0	0	0	1

Make the pivot in the 4th column by dividing the 4th row by 4

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	-1	1	0	0	-1	0	0.5	0.5	0	0	0	0	0
2	0	1	0	1	0	1	0	1	0.5	-0.5	0	0	0	0	0	0
3	0	0	1	1	0	0	1	1	0.5	0	-0.5	0	0	0	0	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	0	0	-2	-2	2	2	0	0	-1	0	0	0	1	0
8	0	0	0	4	-2	2	2	2	1	-1	-1	0	0	0	0	1

Eliminate the 4th column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	1	0	0	0	0.25	0.25	0.25	0.25	0	0	0	0
2	0	1	0	0	0	1	0	0	0.25	-0.25	0.25	-0.25	0	0	0	0
3	0	0	1	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	-2	-2	-2	-2	-1	0	0	0	1	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	0	0	-2	-2	2	2	0	0	-1	0	0	0	1	0
8	0	0	0	0	-2	2	2	-2	0	0	0	-1	0	0	0	1

Make the pivot in the 5th column by dividing the 5th row by -2

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	1	0	0	0	0.25	0.25	0.25	0.25	0	0	0	0
2	0	1	0	0	0	1	0	0	0.25	-0.25	0.25	-0.25	0	0	0	0
3	0	0	1	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	1	1	1	1	0.5	0	0	0	-0.5	0	0	0
6	0	0	0	0	-2	2	-2	2	0	-1	0	0	0	1	0	0
7	0	0	0	0	-2	-2	2	2	0	0	-1	0	0	0	1	0
8	0	0	0	0	-2	2	2	-2	0	0	0	-1	0	0	0	1

Eliminate the 5th column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	
1	1	0	0	0	0	-1	-1	-1	-0.25	0.25	0.25	0.25	0.5	0	0	0	
2	0	1	0	0	0	1	0	0	0.25	-0.25	0.25	-0.25	0	0	0	0	
3	0	0	1	0	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0
4	0	0	0	1	0	0	0	0	0.25	-0.25	-0.25	0.25	0	0	0	0	
5	0	0	0	0	1	1	1	1	0.5	0	0	0	-0.5	0	0	0	
6	0	0	0	0	0	4	0	4	1	-1	0	0	-1	1	0	0	
7	0	0	0	0	0	0	0	4	4	1	0	-1	0	-1	0	1	
8	0	0	0	0	0	0	4	4	0	1	0	0	-1	-1	0	0	

Make the pivot in the 6th column by dividing the 6th row by 4

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	0	-1	-1	-1	-0.25	0.25	0.25	0.25	0.5	0	0	0
2	0	1	0	0	0	1	0	0	0.25	-0.25	0.25	-0.25	0	0	0	0
3	0	0	1	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0
4	0	0	0	1	0	0	0	0	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	1	1	1	1	0.5	0	0	0	-0.5	0	0	0
6	0	0	0	0	0	1	0	1	0.25	-0.25	0	0	-0.25	0.25	0	0
7	0	0	0	0	0	0	4	4	1	0	-1	0	-1	0	1	0
8	0	0	0	0	0	0	4	4	0	1	0	0	-1	-1	0	0

Eliminate the 6th column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	
1	1	0	0	0	0	0	-1	0	0	0	0.25	0.25	0.25	0.25	0	0	0
2	0	1	0	0	0	0	0	0	0	0	0.25	-0.25	0.25	-0.25	0	0	0
3	0	0	1	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0	
4	0	0	0	1	0	0	0	0	0.25	-0.25	-0.25	0.25	0	0	0	0	
5	0	0	0	0	1	0	1	0	0.25	0.25	0	0	-0.25	-0.25	0	0	
6	0	0	0	0	0	1	0	1	0.25	-0.25	0	0	-0.25	0.25	0	0	
7	0	0	0	0	0	0	4	4	1	0	-1	0	-1	0	1	0	
8	0	0	0	0	0	0	4	-4	0	1	0	-1	0	-1	0	1	

Make the pivot in the 7th column by dividing the 7th row by 4

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	0	0	-1	0	0	0	0.25	0.25	0.25	0.25	0	0
2	0	1	0	0	0	0	0	-1	0	0	0.25	-0.25	0.25	-0.25	0	0
3	0	0	1	0	0	0	1	0	0.25	0.25	-0.25	-0.25	0	0	0	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	1	0	1	0	0.25	0.25	0	0	-0.25	-0.25	0	0
6	0	0	0	0	0	1	0	1	0.25	-0.25	0	0	-0.25	0.25	0	0
7	0	0	0	0	0	0	1	1	0.25	0	-0.25	0	-0.25	0	0.25	0
8	0	0	0	0	0	0	4	-4	0	1	0	-1	0	-1	0	1

Eliminate the 7th column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	0	0	0	1	0.25	0	0	0.25	0	0.25	0.25	0
2	0	1	0	0	0	0	0	-1	0	0	0.25	-0.25	0.25	-0.25	0	0
3	0	0	1	0	0	0	0	-1	0	0.25	0	-0.25	0.25	0	-0.25	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	1	0	0	-1	0	0.25	0.25	0	0	-0.25	-0.25	0
6	0	0	0	0	0	1	0	1	0.25	-0.25	0	0	-0.25	0.25	0	0
7	0	0	0	0	0	0	0	1	0.25	0	-0.25	0	-0.25	0	0.25	0
8	0	0	0	0	0	0	0	-8	-1	1	1	-1	1	-1	-1	1

Make the pivot in the 8th column by dividing the 8th row by -8

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	0	0	0	1	0.25	0	0	0.25	0	0.25	0.25	0
2	0	1	0	0	0	0	0	-1	0	0	0.25	-0.25	0.25	-0.25	0	0
3	0	0	1	0	0	0	0	-1	0	0.25	0	-0.25	0.25	0	-0.25	0
4	0	0	0	1	0	0	0	1	0.25	-0.25	-0.25	0.25	0	0	0	0
5	0	0	0	0	1	0	0	-1	0	0.25	0.25	0	0	-0.25	-0.25	0
6	0	0	0	0	0	1	0	1	0.25	-0.25	0	0	-0.25	0.25	0	0
7	0	0	0	0	0	0	1	1	0.25	0	-0.25	0	-0.25	0	0.25	0
8	0	0	0	0	0	0	0	1	0.125	-0.125	-0.125	0.125	-0.125	0.125	0.125	-0.125

Eliminate the 8th column

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	1	0	0	0	0	0	0	0	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0
2	0	1	0	0	0	0	0	0	0.125	-0.125	0.125	-0.125	0.125	-0.125	0.125	-0.125
3	0	0	1	0	0	0	0	0	0.125	0.125	-0.125	-0.125	0.125	0.125	-0.125	-0.125
4	0	0	0	1	0	0	0	0	0.125	-0.125	-0.125	0.125	0.125	0.125	-0.125	0.125
5	0	0	0	0	1	0	0	0	0.125	0.125	0.125	0.125	-0.125	-0.125	-0.125	-0.125

6	0	0	0	0	0	1	0	0	0.125	-0.125	0.125	-0.125	-0.125	-0.125	0.125	-0.125	0.
7	0	0	0	0	0	0	1	0	0.125	0.125	-0.125	-0.125	-0.125	-0.125	0.125	0.125	0.
8	0	0	0	0	0	0	0	1	0.125	-0.125	-0.125	0.125	-0.125	0.125	0.125	0.125	-0.

There is the inverse matrix on the right

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	
1	1	0	0	0	0	0	0	0	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.
2	0	1	0	0	0	0	0	0	0.125	-0.125	0.125	-0.125	0.125	-0.125	0.125	-0.125	0.
3	0	0	1	0	0	0	0	0	0.125	0.125	-0.125	-0.125	0.125	0.125	-0.125	-0.125	0.
4	0	0	0	1	0	0	0	0	0.125	-0.125	-0.125	0.125	0.125	-0.125	-0.125	0.125	0.
5	0	0	0	0	1	0	0	0	0.125	0.125	0.125	0.125	-0.125	-0.125	-0.125	-0.125	0.
6	0	0	0	0	0	1	0	0	0.125	-0.125	0.125	-0.125	-0.125	0.125	0.125	-0.125	0.
7	0	0	0	0	0	0	1	0	0.125	0.125	-0.125	-0.125	-0.125	-0.125	0.125	0.125	0.
8	0	0	0	0	0	0	0	1	0.125	-0.125	-0.125	0.125	-0.125	0.125	0.125	0.125	-0.

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Result:

Nº	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈
1	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
2	0.125	-0.125	0.125	-0.125	0.125	-0.125	0.125	-0.125
3	0.125	0.125	-0.125	-0.125	0.125	0.125	-0.125	-0.125
4	0.125	-0.125	-0.125	0.125	0.125	-0.125	-0.125	0.125
5	0.125	0.125	0.125	0.125	-0.125	-0.125	-0.125	-0.125
6	0.125	-0.125	0.125	-0.125	-0.125	0.125	-0.125	0.125
7	0.125	0.125	-0.125	-0.125	-0.125	-0.125	0.125	0.125
8	0.125	-0.125	-0.125	0.125	-0.125	0.125	0.125	-0.125



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Computation time: