Step-1

If A is a $n \times n$ matrix, then $A^{-1} = \frac{C^T}{|A|}$ â€¦â€¦ (1)

We know that every cofactor A_{ij} of the entries of A.

So, multiplying each of them with their respective sign $(-1)^{i+j}$ and then transposing the matrix, we get C^T

(1) can be written as $|A| A^{-1} = C^T$

Or, using $\det A = 1$, we get $A^{-1} = C^T$ â€¦â€¦ (2)

Consequently, $|A^{-1}| = |C^T|$

$= |A^{n-1}|$

$= |A|^{n-1}$ By the properties of determinants.

= 1 â€¦â€¦ (3)

Step-2

While the cofactor matrix of A is equal to A^{-1}, we follow that the cofactor matrix of A^{-1} is nothing but A.

But the cofactor matrix of C^T is C itself.

Therefore, $A = C$.