Claim: $BA = I$, $AC = I$

$$\Longrightarrow B = C \; (= A^{-1})$$

<u>proof:</u>

$$B = B(A\underbrace{C}_{?}) = (\underbrace{BA}_{?})C = C$$

$$B = C$$

∎

$$(AB)^{-1} = B^{-1}A^{-1}$$

$$\underbrace{(AB)^{-1}}\,AB = \underset{0}{I}$$

$$\underbrace{B^{-1}\underbrace{A^{-1}A}_{I}B}$$

$$\underbrace{B^{-1}B}_{I}$$

$$|A^{-1}| = \frac{1}{|A|} \quad \text{if } A^{-1} \text{ exists}$$

$$|\underbrace{AA^{-1}}_{B}| = |A||A^{-1}|$$

1F

$$\frac{1}{|A|} = |A^{-1}|$$

Inverse of $A \in \mathbb{R}^{2\times 2}$

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$A^{-1} = \frac{1}{\underbrace{ad-bc}_{\det(A)}} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

$|A|$

~~At Home~~ Later...

$$A \cdot A^{-1} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$