$A+(-A)=[0]$

Wednesday, October 20, 2021
11:24 AM

$A \cdot \sqcup = I$

$\sqcup \cdot A = I$

$A^{-1} = ?$

D $\boxed{\Rightarrow}$ A je invertibilna $\overset{?}{\Rightarrow}$ $\det(A) \neq 0$

A je inv. $\Rightarrow \exists A^{-1}$ : $\underbrace{A \cdot A^{-1}} = \underbrace{I}$ / det(·)

$\det(A \cdot A^{-1}) = \det(I)$

$\boxed{\underbrace{\det(A)}_{\neq 0}} \cdot \underbrace{\det(A^{-1})}_{\neq 0} = 1$ ☒

$\boxed{\Leftarrow}$

D: A inv. $\Rightarrow$ $A^{-1}$ jedinstveno.

$A^{-1} = B$

$AB = BA = I$

pps. $\exists\, C \neq B$ : $AC = CA = I$

$C \cdot \backslash\ AB = I$

$C \cdot (AB) = C \cdot I$

$(\underbrace{CA}) \cdot B = C$

$I \cdot B = C$

$B = C$ ↯ ☒

D: A inv. $\Rightarrow \exists A^{-1}$ $AA^{-1} = A^{-1} \cdot A = I$ / det

$\Downarrow$

$\det(A) \neq 0$

$\det(AA^{-1}) = \det(I)$

$\det(A)\det(A^{-1}) = 1$

$\cancel{\det(A) = \frac{1}{\det(A^{-1})}}$ , $\det(A^{-1}) = \frac{1}{\det(A)} \neq 0$ ☒

Wednesday, October 20, 2021
11:24 AM

D) 1) $\underbrace{(A \cdot B)^{-1}} = B^{-1} A^{-1}$

$(AB) \cdot \underbrace{(AB)^{-1}} = I$

$(AB) \cdot (B^{-1} \cdot A^{-1}) \stackrel{?}{=} I$

$A \, (\underbrace{BB^{-1}}) \cdot A^{-1} \stackrel{?}{=} I$

$A \cdot I \cdot A^{-1} \stackrel{?}{=} I$

$\underbrace{A \cdot A^{-1}} \stackrel{?}{=} I$

$I = I$ ✓

$\underbrace{(AB)^{-1}} \cdot (AB) = I$

$B^{-1} \underbrace{A^{-1} \cdot A} B \stackrel{?}{=} I$

$B^{-1} \cdot B \stackrel{?}{=} I$

$I = I$ ✓

2) $\underbrace{(A^{-1})^{-1}} = A$

$(A^{-1}) \cdot \underbrace{(A^{-1})^{-1}} = I$

$A^{-1} \cdot A \stackrel{?}{=} I$

$I = I$ ✓

4) $\underbrace{(c \cdot A)^{-1}} = \frac{1}{c} A^{-1}$

$(c \cdot A) \cdot \underbrace{(c \cdot A)^{-1}} = I$

$(c \cdot A) \cdot (\frac{1}{c} \cdot A^{-1}) \stackrel{?}{=} I$

$\underbrace{c \cdot \frac{1}{c}} \cdot \underbrace{A \cdot A^{-1}} \stackrel{?}{=} I$

$1 \cdot I = I$

$I = I$ ✓

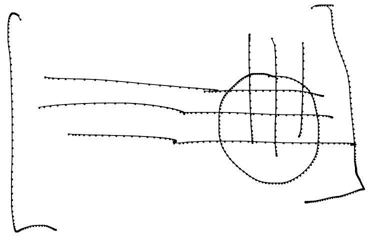
6) C inver. $\Rightarrow \exists C^{-1}$

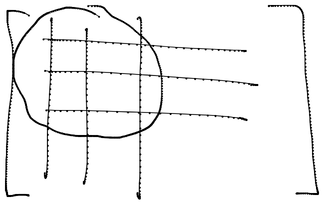
$AC = BC \quad / \cdot C^{-1}$

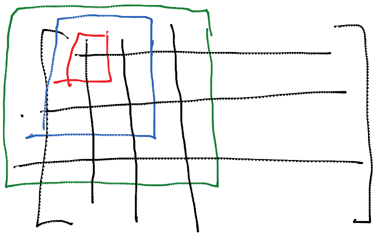
$A \underbrace{CC^{-1}} = B \underbrace{CC^{-1}}$

$A = B$

Wednesday, October 20, 2021
11:24 AM

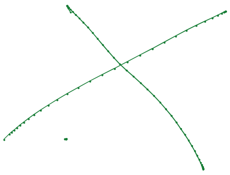


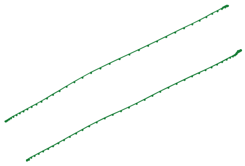


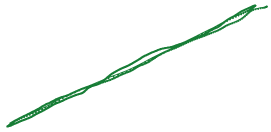


rang(A) = 6rg

$M_r \neq 0, r = 1, \dots, n$







$x^3 + 3x - 5 = 0$

xxx et 3x m̄ 5 ae 10

3x et 7y ae 25

21x ~~et~~ 9y ae 27

17 v.

18. Kramer

$$\begin{vmatrix} 3 & 7 \\ 21 & 9 \end{vmatrix}$$

~19 vek

1850 Matrice

+ −

×

a/b

$f(x)$, $\pi$, $\Sigma$, $e$, $i = \sqrt{-1}$ Ojler

Wednesday, October 20, 2021
11:24 AM

D $\quad A$ inv. $\Rightarrow \exists A^{-1}: A \cdot A^{-1} = I$

$A^{-1} \setminus \quad Ax = b$

$$\underbrace{A^{-1}A}\, x = A^{-1} b$$

$$I x = A^{-1} \cdot b$$

$$\underline{x = A^{-1} \cdot b}$$

jedinstvenost: $\quad$ pps. $\exists\, x_1 \neq x_2 : \quad A x_1 = b, \quad A x_2 = b$

$$\Rightarrow A x_1 = A x_2 \qquad / \cdot A^{-1}$$

$A^{-1} \setminus$

$$\underbrace{A^{-1} \cdot A}\, x_1 = \underbrace{A^{-1} A}\, x_2$$

$$I x_1 = I x_2$$

$$x_1 = x_2 \;\lightning$$

$$\boxed{\begin{array}{l} A x_1 A^{-1} \neq \\ \neq \underbrace{A A^{-1}}\, x \end{array}}$$