2DL60I - 2009 17:

Questions? ask them!

(1.4)(30):

$T \to$ getransformeerde

$$C^T = (A - A^T)^T =$$

$$A^T - (A^T)^T = A^T - A = -C$$

$$\boxed{C^T = -C}$$

$A\ (n \times n)$ $\quad A^T \to (n \times n)$

* b) $\quad B = A + A^T$

$$C = A - A^T \quad +$$

$$(B + C) = 2 \cdot A$$

$$A = \frac{1}{2}(\overset{\overset{\text{symm}}{\downarrow}}{B} + \underbrace{C}_{\to \text{scheef-symm}})$$

$$A = \underbrace{\frac{1}{2}(A + A^T)}_{\text{symm.}} + \underbrace{\frac{1}{2}(A - A^T)}_{\text{scheef-symm.}}$$

A^T: de getransponeerde van A "in normale taal"

(1.4)(1.6);

$$(A \cdot B)^T \qquad (AB)^T = B^T A^T$$

$B \to A^{-1}$

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

$$\to (A^{-1})^T \cdot A^T$$

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

$$\|$$

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

$$\boxed{I = C \cdot A^T}$$

$$C = (A^T)^{-1} = (A^{-1})^T$$

$$(AB)^T = B^T A^T, \quad (B = A^{-1})$$

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

$$\|$$

$$(I)^T = I \qquad = (A^T)^{-1}$$

Stel gewoon vragen, samen komen wij er wel uit!

$(1.5)(2)$

$\boxed{A}$ $\qquad$ A^{-1}? $\qquad$ gred?

$2 \qquad \frac{1}{3} \qquad 2 \cdot \frac{1}{3} \neq 1$

$$\underline{A \cdot A^{-1} = I}$$

$$\underset{A}{\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}} \underset{A^{-1}}{\begin{pmatrix} a & c \\ b & d \end{pmatrix}} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} = I$$

$$\underline{A \begin{pmatrix} a \\ b \end{pmatrix}} = \underset{0}{a} \begin{pmatrix} 0 \\ 1 \end{pmatrix} + \underset{1}{b} \begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$A \begin{pmatrix} c \\ d \end{pmatrix} = \underset{1}{c} \begin{pmatrix} 0 \\ 1 \end{pmatrix} + \underset{0}{d} \begin{pmatrix} 1 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$\cancel{A^{-1} = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}} \qquad \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} \cancel{\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}} \neq \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

$(A \mid I)$ indien een "rotte" makking

vegen met rijen

$\vdots$

$(I \mid A^{-1})$

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

$A = \begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix}$ $A^{-1} = \begin{pmatrix} \frac{1}{2} & 0 \\ 0 & \frac{1}{3} \end{pmatrix}$

$\begin{pmatrix} 2 & 0 \\ 0 & 3 \end{pmatrix} \begin{pmatrix} \frac{1}{2} & 0 \\ 0 & 0 \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

(1.5)(3)

$A \begin{pmatrix} 4 & -2 & 3 \\ 1 & 0 & 2 \\ -2 & 3 & 1 \end{pmatrix}$ $B = \begin{pmatrix} 4 & -2 & 3 \\ 1 & 0 & 2 \\ 0 & 3 & 5 \end{pmatrix}$

$4a = \frac{3}{2} \cdot a = \frac{3}{2}$ $\boxed{4 \cdot a - \frac{3}{2} \cdot 1 = 0}$

$EA = B$

$$E = \begin{pmatrix} 1 & 0 & 0 \\ 0 & & 0 \\ -\frac{3}{2} & l & 0 \end{pmatrix} \begin{pmatrix} 4 & -2 & 3 \\ 1 & 0 & 2 \\ -2 & 3 & 1 \end{pmatrix}$$

$$-\frac{12}{2} + l = -2 \qquad \boxed{l = 4}$$

$$\frac{10}{2}$$

$$\begin{pmatrix} 1 & \cancel{-2} \end{pmatrix} \begin{pmatrix} 3 & 1 & 1 \\ 5 & 0 & 2 \end{pmatrix} =$$

$$1 \cdot \begin{pmatrix} 3 & 1 & 1 \end{pmatrix} +$$
$$2 \cdot \begin{pmatrix} 5 & 0 & 2 \end{pmatrix} =$$
$$\begin{pmatrix} 13 & 1 & 5 \end{pmatrix}$$

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ a & b & c \end{pmatrix} \begin{pmatrix} 4 & -2 & 3 \\ 1 & 0 & 2 \\ -2 & 3 & 1 \end{pmatrix} = \begin{pmatrix} 4 & -2 & 3 \\ 1 & 0 & 2 \\ 0 & 3 & 5 \end{pmatrix}$$

$$\begin{aligned} & a\,(4 \quad -2 \quad 3) \\ + & b\,(1 \quad 0 \quad 2) \\ + & c\,(-2 \quad 3 \quad 1) = (0 \quad 3 \quad 5) \end{aligned}$$

$$\begin{aligned} 4\cdot a + b \cdot -2c &= 0 \\ -2a + 3c &= 3 \\ 3a + 2b + c &= 5 \end{aligned}$$

$$\left(\begin{array}{ccc|c} 4 & 1 & -2 & 0 \\ -2 & 0 & 3 & 3 \\ 3 & 2 & 1 & 5 \end{array}\right)$$

$3\cdot$

2

$$\left(\begin{array}{ccc|c} 0 & 1 & 3 & 6 \\ -2 & 0 & 3 & 3 \\ 0 & 4 & 11 & 19 \end{array}\right)$$

$0 \quad 0 \quad +1 \mid +5$

lin. comb. van rijen van
A = 3^e rij van B

(Ik dacht gemakkelijke getallen, maar niet dus!)

$$a\begin{pmatrix}4 & -2 & 3\end{pmatrix} +$$
$$b\begin{pmatrix}1 & 0 & 2\end{pmatrix} +$$
$$c\begin{pmatrix}-2 & 3 & 1\end{pmatrix} = \begin{pmatrix}0 & 3 & 5\end{pmatrix}$$

<u>Ik heb mijn dag niet!</u>

$$4a + b - 2c = 0$$
$$-2a + 0 + 3c = 3$$
$$3a + 2b + c = 5$$

$$\left(\begin{array}{ccc|c} 4 & 1 & -2 & 0 \\ -2 & 0 & 3 & 3 \\ 3 & 2 & 1 & 5 \end{array}\right) \quad +2 \quad *3 \quad *2 \quad +$$

$$\left(\begin{array}{ccc|c} 0 & 1 & 4 & 6 \\ -2 & 0 & 3 & 3 \\ 0 & 4 & 11 & 19 \end{array}\right) \quad -4$$

$$\left(\begin{array}{ccc|c} 0 & 1 & 4 & 6 \\ -2 & 0 & 3 & 3 \\ 0 & 0 & -5 & -5 \end{array}\right) * -\frac{1}{5}$$

$$\left(\begin{array}{ccc|c} 0 & 1 & 4 & 6 \\ -2 & 0 & 3 & 3 \\ 0 & 0 & 1 & 1 \end{array}\right) \quad -4 \quad -3$$

$$\begin{array}{ccc|c} 0 & 1 & 0 & 2 \\ -2 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array}$$

$a = 0$? $b = 2$, $c = 1$

"Ik zal woord moeten niet herhalen van wat ik zojuist zei

0 × 1e rij

(2 × 2e rij + 1 · 3e rij) van A = 3e rij van B

Zie je wel, meestal eenvoudige antwoorden

ons in de luren laten leggen!