```
subased, quello
          \begin{cases} a_{ii} \times_{i} + \dots + a_{in} \times_{in} = b_{i} \\ \dots \\ a_{ki} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \end{cases} \times = \begin{pmatrix} x_{i} \\ \vdots \\ x_{ii} \end{pmatrix} \in \mathbb{R}
\begin{cases} A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \\ A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \end{cases}
\begin{cases} A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \\ A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \end{cases}
\begin{cases} A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \\ A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \end{cases}
\begin{cases} A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \\ A \times_{i} \times_{i} + \dots + a_{kin} \times_{in} = b_{ii} \end{cases}
                                                                                                                                                                                          (4x); - A; X
                                                                                                                                                                                     AX = B = ( ) CIR
     · YLER YA, BEHR (k. 4) YYER
                 (\lambda_A)_{\vec{x}} = \lambda(A_{\vec{k}}) = A(y_{\vec{k}})
                 ausy. to metro:
                      NA = (NA' | NA2 | ... | NA")
                     (NA) 1 , v. (NA') = v2 (NA2) + ... + v. (NA")
                                         = hv, A' + hv, A2 ...
                                                                                                                                              · veloo per sist. lineari
· operation SUR ver frank
                                         > / (V, A' + V2 A2 ...)
                                        = h(A=)
                                        omogeneité OK ..
    . (A+B) = A + B +
           (A+B) = (A'+B'(A2+B2/--) = 1 passa de "/" " "+" com h .!
             (A+B) = V, (A'+B') + v2 (A2+B2)+... , V, A'+ V, B'+ V2 A2+... + V, A"+ V, B"
Coudis. de compat: bilité...
I whole the wester
                                                                                                                                                                                                                                             ← prod. vet. · most.
Oct. SIA AGHIR (K, P) BGMR (P, 4)
                                                                                                                                                                                                                                                         AEMIR(K) VEIR"
                     AB := (AB' | AB' | ... | AB") & MR (k, u)
                                                                                                                                                                                                                                                          A L . V. A' + V2 A2 + ... + V4 A"
 ∰ }r
A B
  <u> Es.:</u>
     A = \begin{pmatrix} 2 & 3 & 1 \\ 1 & 2 & 0 \end{pmatrix} \qquad B = \begin{pmatrix} 1 & 0 & 0 & 1 \\ 1 & 1 & 1 & -1 \\ 1 & 2 & 0 & 3 \end{pmatrix}
2 \times 3 \qquad \checkmark \qquad \qquad 3 \times 4
                                                                                                                                                                      =\begin{pmatrix} 6 & 5 & 3 & 2 \\ 3 & 2 & 2 & -1 \end{pmatrix}
                                                                                                                                       "prodoth eight pa colune"
                                                                               (AB); = A; B'
                        C_{3}\begin{pmatrix}2&3&1\\1&2&0\end{pmatrix} D_{2}\begin{pmatrix}1&0\\1&1\\1&2\end{pmatrix}
                               Est prendoms due 2\times2, we see aucona of we a stesso SUR M_{\rm IR}(u) = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 = 11 
                                                                                                                                                                                                                                                                                                                                                                                                                                                     gode delle pe. wen: web del produtto?
                                       AB = \begin{cases} 11 \\ 31 \end{cases}
AB = \begin{cases} 11 \\ 31 \end{cases}
BA = \begin{cases} 11 \\ 31 \end{cases}
BA = \begin{cases} 11 \\ 31 \end{cases}
                                                                                                                                                                                                                                                                                                                                                                                                                                                        · destribution
                                                                                                                                                                                                                                                                                                                                                                                                                                              - auch un commetation
                                                                                                                                                                                                                                                                                                                                                                                                                                            - auch unter: 3 elcu. "1" ->
                                                                                                                                                                                                                                                                                                                                                    Es.: (11)
                                                                                                              Un probetto non commutativo!
                                                                                                                                                                                                                                                                                                                                                                     B. (-1 -2)
                                                                                                                                                                                                                                                                                                                                                             AB = \begin{bmatrix} 1 & 2 \\ -1 & -2 \\ 0 & 0 \end{bmatrix} = O_{2\times 2} = O_{M_{10}}(2) \text{ and } s \in A, B \neq O
                                                                                                                                                                                                                                                                                                                                                                um vale ann. prodotto!
                         @ A · B con B.Open AB + Oben
                            DA . B con A. Okip AB = Okxu
                                            (ma non c'é ann. produtto, ex AB = 0 non à tella Aso, B=0!)
                          3 YA, BGHIR (h,p) YCeHIR (p,n) (A+B)c = AC+BC ) segmente 10-
                        @ \A & Mar (k. p) \ \B, C & Mar(p, n) A(B+c) = AB+AC \ O communitation
                              dim 3: (A+B) c = ((A+B) c' | (A+B) c' ...)
                                                                                                       . (AC'+BC' | ...)
                                                                                                                                                                                                                                                                                                          -5 1) - 4) pué consideras produtto
                                                                                                        , (AC' ... ) + (BC' ...)
                              Ex.: dum. 4
                                     (3) VAEMIR(h,h) BEMIR(h,p) CEMIR(p,n)
                                             (A \cdot B) \cdot C \cdot X = A \cdot (B \cdot C)

k \times b \quad b \times b \quad k \times
                                                              popu ossocabu V
                                                      ABC (AB)C V

(AC)B × C non able dim

(AC)B × C non able of phase
                                      Luc S
                                              O C= e; j= 1...p {c., .., sp} boss auswa de 12
                                                               -(AB)C = A(BC)
                                                                   (AB) = (AB) = AB) = providens sol un articula j
                                                          -, A(Bsj) - AB3
                                                                                 L, (AB) c; - A (Bsj)
                                                 (i) <- \frac{1}{2} = \frac{1}{
                                               (ii) < = (c'|c2|...|c4)
(AB) < = ((AB) < |(AB) < 2...)
                                                                                          = (A(Bc') | A(BC2) | ...)
                                                                                        = A(BC) assoc V
                                             Def.: sia In & Hiz (u)
                                                       In , (c, | c, ...)
                                                         I_{2}=\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} I_{3}=\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}
                                               In- dagonale punopolo 2

of agonale punopolo 2

of in tatte gle altri
                                                                           "makice diagonale"
                                                          In à dette MATRICE DENTITÉ le ordine u
                                                         O VYER ILY = Y
                                                                                                                                           = In (v.s,+...)
                                                                                                                                              , In(v, c,) + In (v,c2)...
                                                                                                                                              . v. (Inc.) + .-
                                                                                                                                             > V, C, + V2 C2 ...
                                                             @ VA e Mp (u) In A = A
                                                                                                                                                        = (InA' | InA2.-)
                                                                                                                                                         = (A'(A2 ···)
                                                                                                                                                                                                                                                                                                             X = ( | 000 0 )
                                                               quind In & class unstano
                                                                          Def: Sia A & MIR (u)
                                                                                                        A & INVENTIBLE & I BE MILL (") | AS , BA , IN
                                                                                                        in tal ceso, B & MAT. INVERSA DIA -> B=A-1
                                                                         055. 5 B A, E A!
                                                                       Sim: B, C | AB=BA= In A AC=CA, In
                                                                                             BAC 5 (BA)C = B(AC) = B = C quant è unice, sampre le stessa

In In
                                                                                                    Lique si pas comuntars, une per due sommentatile - It, avece desposa con I
                                                           A > \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}
A \begin{pmatrix} \frac{1}{2} \\ \frac{1}{2} \end{pmatrix} > \begin{pmatrix} \frac{1}{2} \\ \frac{1}{2} \end{pmatrix} > \begin{pmatrix} \frac{3}{2} \\ \frac{1}{2} \end{pmatrix} > \begin{pmatrix} \frac{3}{2} \\ \frac{1}{2} \end{pmatrix}
                                                        B= (ab) = (10)
                                                              A = \begin{pmatrix} 2 & 1 \\ 1 & -1 \end{pmatrix}
                            A^{-1?} \xrightarrow{\text{stesen pos.}} \overline{t}_{u}
\begin{pmatrix} 2 & 1 \\ 1 & -1 \end{pmatrix} \begin{pmatrix} A & b \\ C & d \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}
```

Sc le coloure sons bu indip to los  $\Rightarrow A$   $\binom{2-1}{1-1}\binom{y_3}{y_3} \cdot \binom{0}{0-1}$  with

Goometua 20231116

← pood. ment. . vet. ]