

GESAMTÜBERSICHT: RECHENGESETZE FÜR MATRIZEN

	“+”	“.”	“•”	“T”	“-1”
“+”	(A1) $(A + B) + C = A + (B + C)$ (A2) $A + B = B + A$ (A3) $\exists ! O \forall A : A + O = A$ (A4) $\forall A \exists ! “-A” : A + “-A” = O$	(D1) $(\lambda + \mu)A = \lambda A + \mu A$ (D2) $\lambda(A + B) = \lambda A + \lambda B$	(D’1) $(L + M)A = LA + MA$ (D’2) $L(A + B) = LA + LB$	$(A + B)^T = A^T + B^T$	$(A + B)^{-1} \not\equiv A^{-1} + B^{-1}$
“.”		(M1) $(\lambda\mu)A = \lambda(\mu A)$ (M2) $1 \cdot A = A$	(M’1a) $\lambda(AB) = (\lambda A)B$ (M’1b) $\lambda(AB) = A(\lambda B)$	$(\lambda A)^T = \lambda^T A^T$	$(\lambda A)^{-1} = \lambda^{-1} A^{-1}$
“•”			(A’1) $(AB)C = A(BC)$ (A’2) $AB \not\equiv BA$ (A’3) $\exists ! I : AI = A = IA$ (A’4) $A \text{ regulär} \Rightarrow \exists A^{-1} : AA^{-1} = I$	$(AB)^T = B^T A^T$	$(AB)^{-1} = B^{-1} A^{-1}$
“T”				$(A^T)^T = A$	$(A^T)^{-1} = (A^{-1})^T$
“-1”					$(A^{-1})^{-1} = A$