One Four

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Contents

1 Properties

1. A+B=B+A
2. A+(B+C)=(A+B)+C
3. (km)A=k(mA)
4. 1A=A
5. k(A+B)=kA+kB
6. (k+m)A=Ka+mA
7. $A+0_{m \text{ x } n} = A$
8. A+(-A) = 0
9. If $kA = 0_{m \text{ x } n}$ then k = 0, or $A = 0_{m \text{ x } n}$

2 Matrix Mul Props

1. A(BC) = (AB)C
2. A(B+C) = AB+AC
3. (A+B)C=AC+BC
4. k(AB)=(kA)B=A(kB)

AB $\neq$ BA in general

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A_{2x3}B_{3x2} -> 2x2
B_{3x2}A_{2x3} -> 3x3
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3 Matrix Transpost Props

1. $(A^T)^T = A$
2. $(A+B)^T = A^T + B^T$
3. $(kA)^T = k(A^T)$
4. $(AB)^T = B^T A^T$