

1 Matrix Results on Weighted Drazin Inverse and Some Applications

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In this paper, we present two general representations of the weighted Drazin inverse $A_{d,W}$ of an arbitrary rectangular matrix $A \in M_{m,n}$ related to Moore-Penrose Inverse (MPI) and Kronecker product of matrices. These generalizations extend earlier results on the Drazin inverse A_d , group inverse A_g and usual inverse A^{-1} . Furthermore, some necessary and sufficient conditions for Drazin and weighted Drazin inverses are given for the reverse order law $(AB)_d = B_d A_d$ and $(AB)_{d,Z} = B_{d,R} A_{d,W}$ to hold. Finally, we present the solution of the restricted singular matrix equations using our new approaches.