Norm estimates for convexoid operators

Hilbert space operators are important in formulation of principles of quantum mechanics and also in other fields of applied sciences. These operators include normal operators, hyponormal operators, normaloid operators, spectraloid operators, transaloid operators and convexoid operators among others. The norm property has been investigated by several mathematicians for example Dragomir, Kittaneh, Furuta, Bonyo, Agure among others. Important results have been obtained regarding norm inequalities but this has not been fully investigated as stated by Dragomir. Therefore, the problem that persist is to determine norm estimates for convexoid operators. The objectives of this study are: To establish the necessary and sufficient condition for convexoidity of normal operators, to determine upper estimates of convexoid normal operators and to determine the lower estimate of convexoid normal operators. The methodology shall involve the use of known inequalities like Cauchy-Schwarz inequality, Minkowski's inequality and parallelogram law. We shall also use the technical approach of tensor product and numerical ranges in determining the norm estimates. The results obtained are useful in investigating the norm property for other classes of Hilbert space operators when they are normal self-adjoint.