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Abstract : Abstract polytopes include ordinary convex polytopes as a special case and are defined as systems satisfying certain combinatorial properties of ordinary polytopes. The Euler characteristic is the sum over i with alternating signs of the number of i -dimensional faces. For ordinary polytopes its value is $+1$. This relation, however, does not hold in general for abstract polytopes. Since the 3-dimensional abstract polytopes correspond 1-1 to triangulated 2-manifolds, the range of their Euler characteristic could be determined by applying known results of manifold theory. The paper investigates the range of the Euler characteristic of abstract polytopes in general. (Author)

Descriptors : (*CONVEX SETS, VECTOR SPACES), MAPPING(TRANSFORMATIONS), GRAPHICS, COMBINATORIAL ANALYSIS, THEOREMS

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