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8. Analysis

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Maximal quotient rings of algebras of functions and operators

The maximal quotient ring $Q_{max}(R)$ of the ring $R = C(X)$ of continuous real (or complex) functions on a completely regular Hausdorff space is constructed in terms of continuous functions defined on dense open subsets of X. For certain classes of spaces, including that of metric spaces, $Q_{max}(R)$ turns out to be the classical quotient ring $Q_{cl}(R)$. An example is given to show that this is not true in general. We indicate that the maximal right and left quotient rings of the operator algebra $\mathcal{B}(H)$ of a complex (or real) Hilbert space H are anti-isomorphic full linear rings. The notion of maximal topological quotient rings is also introduced.