$X < Y$ provided: given any element $U$ of the uniform structure on $X$ there is a homology equivalence, $f$: $X \to Y$, $g$: $Y \to X$, such that $g(f(x)) \in U(x)$ for all $x \in X$. This relation is an order relation on the class of compact spaces. This theorem is proved: if $X < Y$ and $Y$ is a Lefschetz space, then so is $X$. The criterion is applied to give examples of non-HLC spaces which are Lefschetz spaces and, in particular, have the fixed point property. (Received March 9, 1954.)

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## RESEARCH PROBLEMS

### 19. Walter Rudin: *Maximum modulus algebras.*

Let $D$ be a domain bounded by a simple closed curve $C$, and let $K = D \cup C$. In Duke Math. J. vol. 20 (1953) pp. 449–458, the following theorem is proved: Let $A$ be an algebra of complex-valued functions continuous on $K$ and suppose (1) for every $f \in A$ there is a point $z_0 \in C$ such that $|f(z)| \leqq |f(z_0)|$ $(z \in K)$; (2) $A$ contains a non-constant function which is analytic in $D$; (3) $A$ contains a schlicht (that is, one-to-one) function. Then every $f \in A$ is analytic in $D$. Is the conclusion valid if (3) is omitted from the hypotheses? Is it possible to weaken (3), for instance by requiring that $A$ separates points? (Received April 6, 1954.)

### 20. Walter Rudin: *Radial limits of analytic functions.*

If $f$ is analytic in the interior $U$ of the unit circle, and if there exists a set $E$ of positive measure such that $f(re^{i\theta})$ is bounded for $0 \leqq r < 1$, $\theta \in E$, does $\lim_{r \to 1} f(re^{i\theta})$ necessarily exist for almost all $\theta \in E$? The same question may be asked about functions meromorphic in $U$. ( Received April 6, 1954.)