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*Nonlinear approximation theory*, by Dietrich Braess, Springer Series in Computational Mathematics, vol. 7, Springer-Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, 1986, xiv + 290 pp., $69.50. ISBN 0-387-13625-8

Approximation theory arose out of the need to represent "difficult" functions by "simpler" functions, precision being then traded for ease of computation. The theory concerns itself more with *classes* of functions than with individual functions. A central problem of perennial interest starts with a prescribed set $M$ in a normed space $E$. One contemplates the approximation of an element $f$ in $E$ by an element of $M$. The least error possible in this process is $d(f, M)$, defined to be the infimum of $\|f - m\|$ as $m$ ranges over $M$. If an element $m$ has the property $\|f - m\| = d(f, M)$, it is called a "best approximant" or "nearest point." Basic questions then are whether a nearest point exists, and if it does, whether it is unique, how it is to be recognized, and how it is to be computed. When a sequence of subsets $M_n$ is given, interesting *asymptotic* questions arise, such as whether the sequence $d(f, M_n)$ converges to zero and if so how rapidly.